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UNITED STATES
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COMMERCIAL FISHERIES REVIEW

A review of developments and news of the fishery industries
prepared in the BUREAU OF COMMERCIAL FISHERIES.

Joseph Pileggi, Editor

Address correspondence and requests to the: Chief, Branch of Market News, Bureau of Commercial Fisheries, U. S. Department of the Interior, Washington 25, D. C.

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COMMERCIAL FISHERIES REVIEW

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FISHERY TARIFF CONCESSIONS IN THE 1960-61 GATT NEGOTIATIONS

By Salvatore DiPalma*

SUMMARY

The United States has concluded, for the most part, the largest and most complex tariff negotiations in the 28-year history of the Trade Agreements Act. The negotiations were held under the auspices of the General Agreement on Tariffs and Trade (GATT). Concessions were exchanged by the United States with other countries on commodities with a total trade value of several billion dollars. Duty rates on a wide range of industrial, agricultural, mineral, and fishery products will be reduced as a result of the negotiations.

The tariff conference, which opened in Geneva in September 1960, was the fifth in a series of multilateral meetings held since 1947 for the purpose of exchanging reciprocal concessions on tariffs. It was convened at United States initiative and was open to all GATT members, 35 of which participated in the negotiations. Concessions obtained and granted by the United States in 18 months of tariff bargaining were officially announced on March 7, 1962, by the U. S. Department of State.

The United States received duty concessions from other countries on fishery commodities with a United States export trade value of $11.7 million in 1959, or 27 percent of the $44.2 million of fishery products exported that year. On the other hand, the United States gave duty concessions with an import trade value of $18,500,000 in 1959, or 5 percent of the $366.5 million of fishery products imported. Since negotiations with several countries have not as yet been formally concluded, a few additional concessions (not included in this report) may ultimately change the total trade figures slightly.

Among the fishery products on which the United States granted duty reductions were frozen swordfish; wolffish or ocean catfish fillets; canned sardines skinned or boned valued over 30 cents per pound; canned anchovies; canned smoked oysters; pearl essence; and a number of pickled, salted, and smoked items, including groundfish, herring, and mackerel. As for the concessions obtained by the United States from other countries, the European Economic Community (EEC or Common Market) gave a binding of the free rate on menhaden oil, and a reduction of the duty rate on frozen salmon from 16 to 10 percent, on canned salmon from 20 to 18 percent, and on canned pilchards from 25 to 20 percent. Rates of the member countries of the Common Market will gradually adjust to these levels; complete adjustment is expected by about 1970. Canada gave a reduction from 10 to 5 percent on the duty rate of both fresh or frozen and canned shrimp, and the United Kingdom from 10 to 8 percent on canned tuna.

A full listing of the fishery items on which the United States granted or received tariff concessions is shown in table 1 and table 2. In addition other countries will reduce a number of their duties on imports of fishery products. United States exports of fishery products should benefit from these lower rates which resulted from negotiations between other GATT members. Details on these reductions are expected to become available soon.

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U. S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
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Table 1 - Principal Tariff Concessions Granted by the United States on Fishery Commodities at 1960-61 GATT Tariff Conference

Tariff Paragraph	Schedule A Statistical Class (1959)	Brief Description	Rate of Duty			Negotiated With	Country's 1959 Imports Into U. S.
			July 1, 1958	Geneva 1961 Agreement			
				Intermediate	Final		
							US$1,000
5	2260 200	Salts derived from vegetable oils, animal oils, fish oils, animal fats and greases, n.s.s. or from fatty acids thereof	12½%	11%	10%	United Kingdom	
41	0941 700	Isinglass	21%	19%	17%	United Kingdom	39
52	0803 000	Whale oil, sperm: crude	1¢ gal.	0.75¢ gal	0.5¢ gal	Peru Norway	803 518
52	0803 500	Whale oil, n.s.p.f.	2.5¢ gal.+ 1.25¢ per lb. IRC.	2.25¢ gal.+ 1.125¢ per lb. IRC.	2¢ gal.+ 1¢ per lb. IRC.	Norway	-
60	8722 000	Ambergris	10%	9%	8%	EEC	9
66	8420 270	Pearl essence	11%	10%	9%	Norway Japan	119 268
717(a)		Fish, fresh or frozen; whole, or beheaded, or eviscerated, or both:					
	0055 500	Swordfish, frozen	1.5¢ per lb.	1¢ per lb.	0.75¢ per lb.	Japan Peru	650 102
717(b)		Fish, fresh or frozen; filleted, skinned, boned, sliced, or divided, n.s.p.f.:					
	0060 450	Wolffish (sea catfish)	1.5¢ lb.	1.25¢ lb.	1¢ lb.	Norway	543
717(c)		Fish, dried and unsalted:					
	0062 000	Cod, haddock, hake, pollock, and cusk	5/8¢ lb.	0.4¢ lb.	0.2¢ lb.	Norway	420
718(a)		Fish, in oil or in oil and other substances:					
	0063 800 (part)	Sardines, skinned or boned, valued over 30¢ per pound[1]	30%	27%	24%	Portugal	1,814
	0064 300	Anchovies, valued over 9¢ per pound[1]	15%	13½%	12%	Portugal	1,863
	0066 200	Antipasto, valued not over 9¢ per pound[1]	22%	20%	17½%	EEC	-
	0066 300	Antipasto, valued over 9¢ per pound[1]	12½%	11%	10%	EEC	180
718(b)		Fish, not in oil or in oil and other substances in airtight containers weighing, with contents, not over 15 pounds each:					
	0067 300	Fish cakes, balls, and pudding	5%	4%	3%	Norway	9
	0067 600	Herring, smoked or kippered or in tomato sauce, packed in immediate containers weighing, with contents, more than 1 pound	10%	9%	8%	United Kingdom	230
719		Fish, pickled or salted (except in oil, etc., and except in airtight containers, weighing, with contents, not over 15 pounds each):					
(2)		Cod, haddock, hake, pollock, and cusk, neither skinned nor boned, etc.:					
	0069 000	Not more than 43 percent moisture by weight	0.5¢ lb.	0.35¢ lb.	0.2¢ lb.	Canada	2,636
	0069 200	More than 43 percent moisture by weight	0.25¢ lb.	0.225¢ lb.	0.2¢ lb.	Canada	1,494
(3)	0069 900	Cod, haddock, hake, pollock, and cusk, skinned or boned	1.25¢ lb.	1¢ lb.	0.75¢ lb.	Canada	2,008
(4)		Herring (include sprats, pilchards, and anchovies); in bulk or in containers, weighing, with contents, more than 15 pounds each:					
	0070 100	In containers containing each not more than 10 pounds of herring, net weight	3/8¢ per lb. net weight	0.35¢ per lb. net weight	0.1¢ per lb. net weight	EEC	219
	0070 400	In containers containing each more than 10 pounds of herring, net weight	0.25¢ per lb. net weight	0.18¢ per lb. net weight	0.1¢ per lb. net weight	Norway	1,809
		Mackerel:					
	0072 000	In bulk or in containers weighing, with contents, more than 15 pounds	0.5¢ lb.	0.3¢ lb.	0.2¢ lb.	Norway	259
	0072 200	In containers (not airtight) weighing with contents not more than 15 pounds each	12½%	11%	10%	EEC	77
720(a)		Fish, smoked or kippered, not in oil, etc., and not in airtight containers weighing, with contents, 15 pounds or less each:					
		Herring:					
(2)	0075 100	Whole or beheaded, hard dry-smoked	5/16¢ lb.	0.2¢ lb	0.1¢ lb.	Norway	130
(3)	0075 400	Eviscerated, split, skinned, or divided	1.25¢	1¢ lb.	0.9¢ lb.	Canada	62
		Cod, haddock, hake, pollock, and cusk:					
(4)	0075 500	Whole, or beheaded, or eviscerated, or both	1¢ lb.	0.75¢ lb.	0.5¢ lb.	Canada	143
(5)	0075 600	Filleted, skinned, boned, sliced, or divided	1.5¢ lb.	1.25¢ lb.	1¢ lb.	Canada	336
721(c)	0078 500	Fish paste and fish sauce	10%	9%	8%	EEC	23
721(d)	0079 590	Other fish roe for food purposes, boiled and packed in airtight containers	7½%	6½%	5½%	Norway	15
721(e)	0081 100 (part)	Smoked oysters in airtight containers	6¢ per lb. 1/	5.4¢ per lb. 1/	4.5¢ lb. 1/	Japan	1,678
775	1250 210	Soups, soup rolls, soup tablets, or cubes, etc.	17½%	15½%	14%	EEC	2/
	1250 250	Pastes, balls, puddings, hash, and similar mixtures of vegetables, meats, or fish, n.s.p.f.	21%	19%	17%	Switzerland EEC	2/ 2/
1519(a)		Fur seal skins, dressed:					
	0737 600	Whole skins, not dyed	12½%	11%	10%	Norway	24
	0737 605	Tails, paws, pieces, etc., not dyed	12½%	11%	10%	Norway	-
	0737 620	Whole skins, dyed	15%	13½%	12%	Norway	12
	0737 625	Tails, paws, pieces, etc., dyed	15%	13½%	12%	Norway	-
1537(a)	0990 240	Whale bone manufacturers	12½%	11%	10%	EEC	-
1558	1190 800	Dog food unfit for human consumption: Other manufactured, n.s.p.f. etc.	10%	9%	8%	Canada	2/
1558	9850 550	Marine glue pitch	20%	18%	16%	United Kingdom	1

1/Including weight of immediate container.
2/Fishery item not separately reported.
Abbreviations: "IRC" - Internal Revenue Code; "n.s.s." - not elsewhere specified; "n.s.p.f." - not specifically provided for; "EEC" - European Economic Community (Belgium, France, W. Germany, Italy, Luxembourg, and The Netherlands).

Table 2 - Principal Tariff Concessions Obtained by the United States on Fishery Commodities at 1960-61 GATT Tariff Conference

Country	Tariff Number	Brief Description	Rate of Duty		U. S. 1959 Exports to Negotiating Country
			Existing	Negotiated	
					US$1,000
EEC	03.01 A ex I	Salmon, fresh or frozen	16%	10%	258
EEC	03.01 C	Fish livers and roes, fresh or frozen	14%	1/14%	2/
EEC	03.02 AI ex c	Salmon, whole, headless, or in pieces, salted	15%	12%	224
EEC	03.02 AII ex b	Salmon fillets, salted	18%	16%	3/
EEC	03.02 ex B	Smoked salmon	16%	1/16%	3/
EEC	15.04 ex B	Menhaden oil	free	1/free	7,006
EEC	16.04 B	Canned salmon	20%	18%	486
EEC	16.04 ex E	Canned pilchards	25%	20%	146
EEC	16.05 ex	Canned shrimp	30%	1/30%	80
EEC	16.05 ex	Canned squid	20%	1/20%	-
EEC	32.09 AI	Pearl essence	16%	1/16%	71
Austria	32.09	Pearl essence	28% but not less than 800 schillings per 100 kgs.	25% but not less than 700 schillings per 100 kgs.	15
Canada	130	Fresh or frozen shrimp	10%	5%	1,398
Canada	130	Canned shrimp	10%	5%	1,894
Portugal	16.05 ex	Canned squid	18 escudos per kg.	8 escudos per kg.	-
United Kingdom	05.13	Natural sponges	10%	8%	2/
United Kingdom	16.04 ex D	Canned tuna	10%	8%	-
United Kingdom	32.09 B2	Pearl essence	20%	16%	69
Switzerland	16.05.20	Canned shrimp	50 francs per 100 kgs.	40 francs per 100 kgs.	125

1/Rates bound (guaranteed) against increase.
2/Trade data not reported separately.
3/U. S. export data included in $224,000 shown for first salted salmon item.
Note: Duty rates on items shown for EEC will not become fully effective until about 1970. In the meantime, individual duty rates of member countries of the EEC will gradually adjust to full rates. The EEC or "Common Market" includes the following countries: Belgium, France, W. Germany, Italy, Luxembourg, and the Netherlands.

BACKGROUND

The Tariff Act of 1930 established the basic rates of duties and the general rules to be applied to the importation of products into the United States. In 1934, Congress passed the Trade Agreements Act, authorizing the President to conclude trade agreements with other countries. In return for reductions by other countries in their restrictions on United States goods, the President was given authority to modify United States tariffs.

The Department of the Interior has participated in the development of trade agreements only since 1951. The President, by executive order, provided for Interior membership in the interdepartmental Trade Agreements Committee. At that time, duties on fishery products in most cases had already been reduced by 50 percent from their 1930 levels, and in some cases by as much as 75 percent.

The role of the Department of the Interior in the field of international trade was strengthened by the Fish and Wildlife Act of 1956. Among other things, the Act provided for representation at negotiating conferences and for authority to participate in the solution of foreign fishery trade problems. Within that framework, the Department has played a constructive role in representing the interests of the fishery industries in the implementation of the Government's foreign trade policies.

The tenth renewal of the President's authority to negotiate changes in duties under the Tariff Act of 1930 was passed by the Congress in 1958. The authorization granted extends to June 30, 1962. The President was given authority to reduce United States duties either (1) by not more than 20 percent; or (2) by not more than 2 percentage points in ad valorem rates or its equivalent in the case of specific duties; or (3) to 50 percent ad valorem, or its equivalent in the case of specific duties. During the 1960-61 negotiations, the bulk of reductions were in the "not more than 20 percent" category, although the other alternatives were also used where appropriate.

Public notices concerning United States intention to participate in the 1960-61 negotiations were issued on May 27, 1960, and November 22, 1960. Attached to each notice was a list of the products under consideration for a possible concession. The notices provided for the submission of written briefs and the holding of public hearings. Interested parties were given the opportunity to present their views to the appropriate Government bodies concerning the desirability of granting concessions on listed products. In addition, each notice solic-

ited the views of interested parties on the desirability of seeking concessions in the tariffs of other countries.

The GATT negotiations in Geneva were conducted in two phases. In the first phase, the United States and other GATT members negotiated with the European Economic Community to achieve a set of concessions in the common external tariff of the EEC which would match, in trade coverage and duty level, previous concessions in the separate tariffs of the EEC countries (Belgium, France, West Germany, Italy, Luxembourg, and the Netherlands).

The Treaty of Rome which established the European Common Market provides that the tariffs for the member states shall be gradually replaced by a common external tariff (CXT). Article XXIV:6 of the GATT states that the new external tariff of any customs union shall not be higher, on the whole, than the general incidence of the duties applied by constituent members before the union was formed.

The United States and other GATT members reviewed the individual CXT items with the European Economic Community to ascertain that their proposals were in conformity with GATT rules. For example, in the individual EEC countries, the original national duty rates on canned pilchards were 20 percent in the Benelux countries (Belgium, Netherlands, and Luxembourg), 25 percent in France and West Germany, and 30 percent in Italy. The original proposed rate for the common external tariff of the EEC was 25 percent ad valorem. The United States made a case for a lower rate and the EEC acquiesced with a new rate of 20 percent ad valorem.

In the second phase of the negotiations, the United States, EEC, and other participating GATT countries exchanged tariff concessions with one another. A member could meet in separate negotiations with any member which so agreed. The United States negotiated with the EEC, the United Kingdom, Japan, Norway, Portugal, and a number of other countries. The concessions exchanged by any two members in such separate negotiations also apply to imports from all GATT members.

The negotiation conducted between the United States and the United Kingdom illustrates this bilateral approach. Concessions were exchanged on a list of commodities with a total trade value of nearly $200 million in 1959. On the lists of concessions which were exchanged were duty reductions on canned tuna by the United Kingdom and on canned herring by the United States. These lower rates of duty will apply equally to imports from any other GATT countries.

During the conference, negotiations were also conducted among GATT countries in cases where previous concessions granted by a member had been withdrawn. In such cases, the affected countries would renegotiate and try to agree on satisfactory compensatory concessions for the withdrawn item. Negotiations were also held with several countries, including Portugal, which desired to become members of the GATT.

The agreements reached during the negotiations are scheduled to be put into effect on the part of the United States by Presidential Proclamation. Under the terms of the agreements, however, the date on which the reductions come into force is left for subsequent determination. It is expected that members will mutually agree to apply the new duty rates on July 1, 1962.

The United States reductions are to be staged generally in the minimum period authorized. Where the reduction is to be not more than 20 percent or 2 percentage points, the duty will be cut in two stages, each by one-half of the amount, one year apart. The first cut in duty rates is expected to become effective around July this year.

The reductions in duties granted by the EEC are in terms of the common external tariff which will become fully applicable about 1970. During the interim period, the individual national external tariffs of each member country will move gradually toward the final rate. This means that the tariffs of the individual EEC countries will be either increasing or de-

creasing as those countries either bring their present tariffs up or down to the announced Common Market external tariff.

Reductions in duties granted by non-EEC countries to the United States are expected to be put into effect for the most part in one stage, that is, into full effect this year.

TARIFF CONCESSIONS GRANTED BY THE UNITED STATES

During the second phase of the negotiations, the United States granted tariff concessions on fishery products to a number of countries. A concession was usually made to the country or countries that had contributed the major share of the United States imports of a particular product. Many of the duty rates which will be reduced by the United States were already at a low level.

CANADA: The United States granted Canada concessions on fishery products which have a larger total dollar value than the total value in concessions given to any other country. Most of the duty reductions granted to Canada were on various types of pickled, salted, dried, or smoked groundfish (cod, haddock, hake, and cusk). The concessions will further reduce the present low United States duty rates on those products.

NORWAY: Concessions were granted Norway on a variety of fishery products. Reduced rates of duty were given on wolffish or ocean catfish fillets; fish cakes, balls, and pudding; and on certain pickled and salted herring and mackerel items.

PERU: Concessions were granted to Peru on crude sperm whale oil and on frozen swordfish. The whale oil concession was also granted to Norway and the swordfish concession to Japan. In 1959, Peru supplied United States whale oil imports valued at $802,995, and Norway $518,129 worth. Peru supplied United States frozen swordfish imports valued at $101,576, and Japan $649,595 worth.

EUROPEAN ECONOMIC COMMUNITY: The EEC received concessions on certain pickled and salted herring and mackerel, canned antipasto, and several other items.

JAPAN: In addition to several fishery concessions shared with other countries, Japan obtained a duty reduction on canned smoked oysters.

UNITED KINGDOM: The concession on certain canned herring granted to the United Kingdom includes the well-known British product "Marshall Herring."

PORTUGAL: The United States, in negotiations with Portugal, granted reductions in the duties on canned sardines, skinned or boned and valued over 30 cents per pound, and on canned anchovies.

TARIFF CONCESSIONS OBTAINED BY THE UNITED STATES

During the negotiations the United States obtained direct concessions from other countries on a number of fishery products. Exports of United States menhaden oil and shrimp should benefit most from the concessions received.

EUROPEAN ECONOMIC COMMUNITY: Concessions were obtained from the EEC in both phases of the conference. During the first phase, the United States obtained a free binding on menhaden oil. This binding specifically guarantees to the United States a free duty on menhaden oil. Since menhaden oil is currently the principal United States fishery product exported, and the EEC is the principal market, the concession has considerable importance. Reduced duty rates were obtained on canned salmon, frozen salmon, and canned pilchards. Rates were bound (guaranteed) on canned shrimp and canned squid. During the second phase, the EEC granted reductions on cured salmon products.

CANADA: The Canadian duty rate on both fresh or frozen and canned shrimp was reduced from 10 percent to 5 percent ad valorem. In 1959, United States exports of shrimp to Canada were valued at $3,289,592.

UNITED KINGDOM: The United States obtained a reduction from 10 to 8 percent ad valorem in the United Kingdom duty on canned tuna. In addition the United Kingdom granted reductions on natural sponges and pearl essence.

OTHER COUNTRIES: Switzerland granted a duty reduction on canned shrimp, and Austria on pearl essence. Portugal granted a reduction in the duty on canned squid to less than one-third of the existing rate.

PACIFIC SALMON CAUGHT IN SCOTTISH WATERS

An unusual fish was caught in a bag-net at the Altens salmon fishing station on the Kincardineshire coast just south of Aberdeen, Scotland, on July 16, 1960. It was identified as Oncorhynchus gorbuscha (Walbaum), the pink or humpback salmon, of which the natural distribution is along the Pacific coast of North America and Asia from the Bering Straits to the Sacramento River and Peter the Great Bay.

The fish caught at Altens was 20.5 inches long over-all with a girth of 13¼ inches, and it weighed 4 lbs. 2 oz. This species is at once distinguishable from either the Atlantic salmon or the sea trout by its deeper body, its more pointed snout, and the presence of coarse oval black spots on the tail. Its color is a bright blue and its scales are very small and even more delicate than those which commonly occur on the earliest grilse of the season. Dissection showed that the fish was a male with enlarged testes though the kype and hump that develop at the spawning period were not evident.

The pink or humpback is one of the six species of the genus Oncorhynchus which are commonly known as the "Pacific salmon." They spend part of their life in the sea and part in the streams where they spawn and die. Unlike Atlantic salmon, pink salmon all spawn as two-year-old fish and all die after spawning. The adult salmon migrate from the sea to the streams during the summer and early autumn and spawn in the lower reaches of the rivers. When the eggs hatch in the spring the tiny fish are already silvery without the spots and parr marks of the Atlantic salmon fry, and go straight to salt water so that nearly the whole two years' life-span is spent in salt-water feeding and growing rapidly. Most pinks weigh 4 or 5 pounds though a few weigh as much as 10 pounds. They are caught commercially by gill-netting, purse-seining, and trolling.

Since 1956 the Russians have transferred very large numbers of Pacific salmon eggs, chiefly pink salmon, from Sakhalin Island north of Japan to the rivers of the Kola peninsula. Up to the middle of September 1960, they have had records of the return of some 75,000 fish to the rivers of the Kola peninsula. There have also been reports of recaptures on the Norwegian coast, chiefly in the north but extending as far south as Bergen, and in Iceland. Several thousand Pacific salmon have been caught on the Norwegian coast but in Iceland the catches have been much smaller--probably less than 50 altogether. It is, therefore, reasonable to assume that the pink salmon caught at Altens originated from one of the rivers of the Kola peninsula. (Scottish Fisheries Bulletin--No. 14, March 1961.)

TRENDS AND DEVELOPMENTS

California

MIDWATER TRAWLING FOR SALMON FINGERLINGS CONTINUED:

M/V "Nautilus" Cruise 62-N-1c and 62-N-1d-Salmon: Midwater trawl operations in the Carquinez Strait area to capture marked salmon fingerlings on their seaward migration were continued by the California Department of Fish and Game research vessel Nautilus (February 4-8, 18-22, 1962). A nylon midwater trawl with 25-foot square opening was used.

Trawling in Carquinez Strait was conducted between 8 a.m. and 3 p.m. and each tow was for 20 minutes. All tows were alternated between upstream and downstream, and between the north shore, center, and south shore of the channel.

A total of 95 tows was completed in the Strait during this cruise yielding a catch of 92 wild king salmon (Oncorhynchus tshawytscha).

King salmon
(Oncorhynchus tshawytscha)

Other species appearing in the catch in significant quantities consisted mostly of Sacramento smelt (Spirinchus thaleichthys) 1,984 fish, striped bass (Roccus saxatilis) 1,923 fish, surf smelt (Hypomesus pretiosus) 1,127 fish, northern anchovy (Engraulis mordax) 1,065 fish, American shad (Alosa sapidissima) 362 fish, Pacific herring (Clupea pallasi) 169 fish, three-spined stickleback (Gasterosteus aculeatus) 104 fish, and king salmon (Oncorhynchus tshawytscha) 92 fish.

M/V "Nautilus" Cruise 62-N-1e and 62-N-1f Salmon: Midwater trawling for salmon fingerlings in the Carquinez Strait area was continued (March 6-9, 18-22, 1962) by the Department's research vessel Nautilus.

Trawling was conducted between 8 a.m. and 3 p.m. and each tow was for 20 minutes. All tows were alternated between upstream and downstream, and between the north shore, center, and south shore of the channel.

A total of 98 tows completed in the Strait during this cruise yielded a total catch of 112 king salmon (Oncorhynchus tshawytscha). Three of these fish were mark recoveries: 2 from a release in the American River on January 5, 1962, and 1 from releases in San Pablo Bay made after March 8, 1962.

Other species appearing in the catch in significant quantities consisted mostly of Pacific herring (Clupea pallasi) 5,033 fish, Sacramento smelt (Spirinchus thaleichthys) 2,798 fish, striped bass (Roccus saxatilis) 1,890 fish, American shad (Alosa sapidissima) 520 fish, northern anchovy (Engraulis mordax) 201 fish, surf smelt (Hypomesus pretiosus) 170 fish, splittail (Pogonichthys macrolepedotus) 119 fish, king salmon (Oncorhynchus tshawytscha) 112 fish, and white croaker (Genyonemus lineatus) 103 fish.

Note: See Commercial Fisheries Review, April 1962 p. 12.

Central Pacific Fisheries Investigations

TUNA BLOOD TYPES BEING STUDIED FOR SUBPOPULATION IDENTIFICATION:

In the past ten years blood typing techniques utilized for humans, and later domestic animals, have found increasing application to the problem of subpopulation identification in fish. This is because blood or serological characters are deemed to be under regular genetic control and hence

free from modification due to the environment of the animal.

The staff of the Subpopulations Program at the U. S. Bureau of Commercial Fisheries Biological Laboratory at Honolulu has been developing blood-typing reagents for four species of tuna: the albacore, big-eyed, skipjack, and yellowfin. By application of sophisticated techniques, tests have been developed with these reagents that will detect different and discrete blood systems within the tuna. The ultimate application of these techniques is to use them on large samples of bloods from different areas to ascertain the frequency of occurrence of the various blood systems. If the frequencies in samples from one area differ statistically from those of another area, it may be assumed that two genetically different and reproductively isolated populations have been sampled.

This aim was realized for skipjack tuna during a cruise of the Bureau's research vessel Charles H. Gilbert in waters around the Marquesas, Tuamotu, and Society Islands. During the period from September 29 to December 4, 1961, blood samples from 780 skipjack caught in those waters were tested.

Comparison of the data from those tests and similar tests with the same reagents run against skipjack taken in local Hawaiian waters, shows the occurrence of 2 of the 6 phenotypes in the Marquesan skipjack to be very different from the frequency of occurrence of the same two phenotypes in all the other areas sampled.

From such comparisons we are able to conclude that in the areas sampled reproductive isolation exists and that at least two genetically different subpopulations have been sampled.

* * * * *

TUNA STUDIES IN SOUTH PACIFIC CONTINUED BY M/V "CHARLES H. GILBERT":

Cruise 55 (January 15-April 3, 1962): The South Pacific Ocean, in area bounded by latitude 5° and 25° S., longitudes 167° E. and 160° W. (waters of New Caledonia, Fiji, Ellice Islands, Tonga, and Samoa) and waters adjacent to Christmas Island, was where the U. S. Bureau of Commercial Fisheries research vessel Charles H. Gilbert operated for almost three months this year. The vessel departed Honolulu, Hawaii, on January 15, 1962. The vessel fished long line, made plankton net tows and midwater hauls in selected areas on initial leg of cruise to Noumea, New Caledonia, from January 16 to February 4. At Noumea, vessel scientific staff consulted with scientists of the Institut Francais d'Océanie on the cooperative cruise of the Orsom III. Resumed cruise southeastward to 172° 30' E., thence northeast to Suva, Fiji, from February 9 to February 16. Loaded additional bait at Suva and resumed cruise northeastward to 10° 43' S., 178° 46' E., from February 20 to February 25. Continued cruise on southeast leg to Nuku'alofa, Tongatapu Island, Tonga, from February 25 to March 3. Resumed cruise to Pago Pago, American Samoa, from March 9 to March 15. Refueled and loaded additional bait at Pago Pago. Made bait survey on island of Tutuila on March 16 and 18. Resumed cruise from Pago Pago to vicinity of Christmas Island from March 19 to March 28, and fished two long-line stations on March 28 and 29. The vessel returned to Honolulu on April 3.

One of the objectives was to assess the sexual maturity of long line-caught albacore in the general area of New Caledonia, Fiji, Tonga, and Samoa in order to define the spawning of the South Pacific albacore. The 22 long-line stations fished within that area produced 49 albacore, 36 yellowfin, 14 big-eyed tuna, 3 skipjack, 17 spearfishes, 46 sharks, and 51 miscellaneous fishes. The albacore, 16 females, 32 males, and 1 unsexed, were generally large adults; the smallest measured 87 cm. Fifty percent of the females had spent ovaries and the other 50 percent had ovaries that were either immature or in the early stages of development. None had ripe or near-ripe ovaries, indicating that the fish had already spawned.

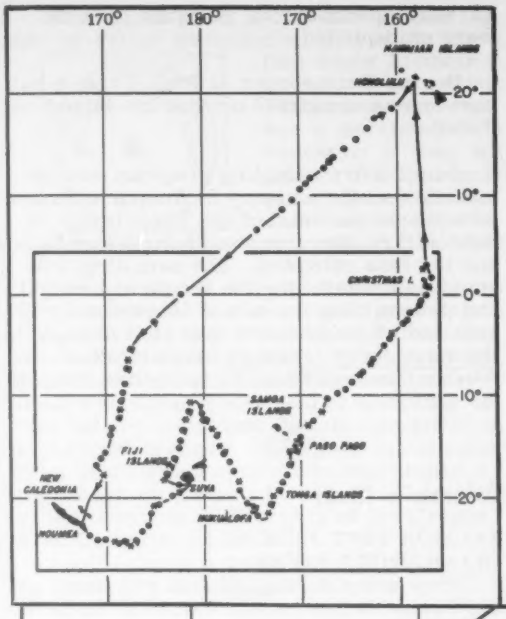
A second objective was to collect blood and serum samples from tunas, marlins, and sharks for serological studies. Blood samples were collected from albacore, yellowfin, big-eyed, and skipjack tuna, blue marlin, sailfish, and short-nosed spearfish. In addition to those species, blood samples were obtained from dolphin, barracuda,

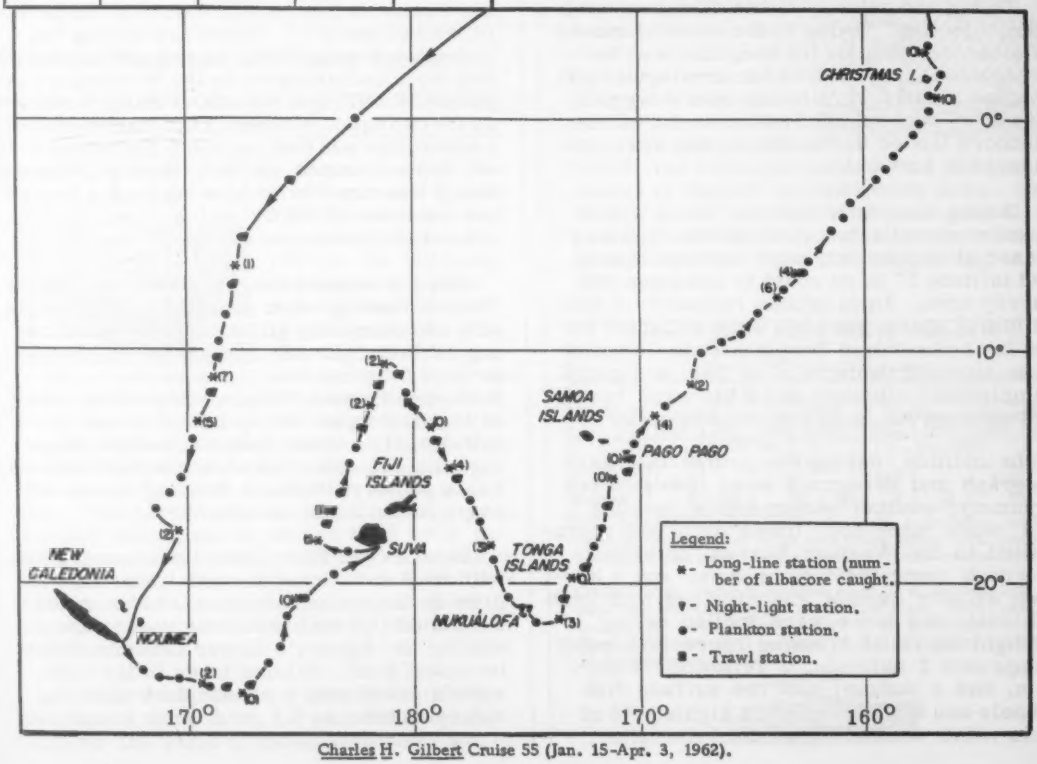
Collecting tuna blood sample.

and wahoo. Blood serum samples were taken from all the above species as well as from great blue, white-tip, and silky sharks.

To collect larval and juvenile forms of tunas and tuna-like fish by plankton tows, trawl hauls, and night-light fishing was a third objective. A total of 127 surface and 140-meter oblique plankton tows, 2 mid-water trawl hauls, and 26 night-light collections were made in order to obtain larval and juvenile tunas. Gross examination of plankton samples at sea indicated that few larval tuna were taken by the plankton nets. No tuna or tuna-like juvenile was taken either in the trawl or by night-light fishing.

To attempt artificial fertilization and shipboard rearing of larval and juvenile scombrids was a fourth objective of the cruise. In the absence of running-ripe tuna eggs, an attempt was made to fertilize artificially big-eyed eggs in the most advanced stage of development found. The eggs were transparent and measured up to 0.9 mm. in diameter. However, the attempt was unsuc-





Charles H. Gilbert Cruise 55 (Jan. 15-Apr. 3, 1962).

cessful, probably owing to lack of sufficient milt and insufficent maturity of the eggs.

In order to capture young tuna alive in the plankton net, a plastic cylinder 17 inches long and $3\frac{1}{4}$ inches in diameter, containing twelve $\frac{3}{4}$-inch holes in the anterior half, was used at the cod end, instead of the usual sock made of nylon netting. The plastic cod end was used on nearly all of the surface tows. Although no young tuna was taken, it was shown that this device could catch small fish and hold them alive until they were transferred to the aquarium.

In the absence of young tuna for shipboard rearing, the young of other species of fish taken at night-light stations were used in order to test the design and capability of the aquarium. Keeping the more pelagic forms, such as dolphin and marlin, alive for any length of time was not possible, because they did not learn to feed upon the food offered them. Young holocentrids and goatfish, however, fared very well.

To tag and release viable albacore was a fifth objective. Owing to the small numbers of albacore taken on the long line and the premium placed on data for serological and ovarian studies, no albacore were tagged. However, approximately 25 percent of the albacore landed during the cruise were considered to be viable.

During the cruise tuna and shark specimens were collected; drift bottles were released at regular intervals between Hawaii and latitude 5° S. en route to and from the survey area. Total bottles released: 1,680; yellowfin sperm samples were collected for the Inter-American Tropical Tuna Commission; stomach contents of 84 fish, and gonad samples of 3 albacore and 2 big-eyed tuna were preserved in 10-percent formalin.

In addition, during the cruise the thermograph and barograph were operated continuously; weather observations, totaling 218, were made four times daily and transmitted to the Weather Bureau; bathythermograph casts (245) were made and a surface salinity sample was obtained with each BT cast; two lures were trolled during daylight hours at cruising speed (the catch comprised 1 skipjack, 3 yellowfin, 4 dolphin, and 1 wahoo); and 124 surface fish schools and bird flocks were sighted, 65 of them within the survey area (of the latter, 13 were identified as skipjack, and 52 were unidentified).

During the stopover at Pago Pago, a bait survey was conducted around the island of Tutuila.

An albacore sampling program was established at the cannery in American Samoa with the cooperation of the Department of Agriculture, Government of American Samoa, and the tuna company. The sampling will consist of measuring the length and weight and determining the sex of 50 randomly-selected albacore from each load brought to the cannery by Japanese long-liners.

Note: See Commercial Fisheries Review, February 1962 p. 16.

Columbia River

SALMON TEST FISHING IN COLUMBIA RIVER:

"How many spring chinook will move up the Columbia this year? When will the peak of the run occur?" These are among the questions Oregon Fish Commission biologists and their counterparts in the Washington Department of Fisheries are seeking to answer as the two agencies started the fourth year of cooperative test fishing in the Columbia River. Data obtained will help answer these and many other questions bearing on the proper management of the Columbia River anadromous fishery resource.

Oregon started the test fishing on March 15 and Washington on March 27. It consists of a run-sampling gill-netting program designed to gather information on which will be based the commercial seasons in the Columbia River. Oregon technicians fished in the vicinity of Woody Island, some 15 miles upriver from Astoria, and the Washington technicians fished in the Corbett area, below Bonneville Dam. Fishing continued every other day until late April.

The Oregon Fish Commission contracted with an Astoria commercial fisherman to provide the vessel and gear and to conduct the actual fishing operations under supervision on the Agency's Lower Columbia River technical staff. Salmon taken in the nets were marked with a plastic dart-type tag and released.

Washington used a circular plastic tag, the so-called Peterson-disc type, to mark fish taken in their Corbett area netting. Fishermen can render a service to conservation if they will inform the appropriate state agency of the date and location of any tagged fish taken.

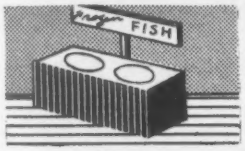
Peterson-disc type tag.

Spring chinook salmon of the Williamette River stock, for the most part, pass up the Columbia into the Williamette before the commercial season opens. However, a considerable fluctuation in fish runs necessitates a continuing program of sampling so that fishery biologists remain current on any significant changes. "The information gained from test fishing operations represents a big return on a small investment," according to the Director of Research of the Oregon Fish Commission.

Federal Purchases of Fishery Products

DEPARTMENT OF DEFENSE PURCHASES, JANUARY-MARCH 1962:

Fresh and Frozen: For the use of the Armed Forces under the Department of Defense, a greater amount of fresh and frozen fishery products was purchased in March 1962 by the Military Subsistence Supply Agency than in the previous month--the quantity purchased was up by 78.9 percent and the value of the purchases was up 36.5 percent. This shows that lower-priced fishery products were purchased in March than in February because the value did not increase in the same proportion as the quantity. Compared with the same month a year earlier, purchases in March 1962 were up 24.2 percent in quantity but the value was up 54.6 percent. This shows that in March this year some of the purchases consisted of higher-priced products than in the same month of 1961.



During the first three months of 1962, purchases were down 7.3 percent in quantity, but the value of those purchases was up 12.8 percent as compared with the same period of 1961. Again this shows that purchases in the first quarter of 1962 consisted of some higher-priced products than was the case in the same period of 1961.

Prices paid for fresh and frozen fishery products by the Department of Defense in March 1962 averaged 55.6 cents a pound, 17.3 cents a pound less than the previous month, but 10.9 cents a pound more than in the same month of 1961.

Table 1 - Fresh and Frozen Fishery Products Purchased by Defense Subsistence Supply Centers, March 1962 with Comparisons

QUANTITY				VALUE			
March		Jan.-Mar.		March		Jan.-Mar.	
1962	1961	1962	1961	1962	1961	1962	1961
(1,000 Lbs.)				($1,000)			
1,948	1,568	4,788	5,167	1,084	701	2,874	2,547

Canned: A substantial amount of canned salmon was purchased in March this year for the use of the Armed Forces. For the first quarter of this year purchases of canned tuna and canned salmon were substantially greater than in the same period of 1961, but purchases of canned sardines were down. The decline in the purchases of canned sardines was no doubt due to the short packs of both Maine and California sardines during the 1961 season.

Table 2 - Canned Fishery Products Purchased by Defense Subsistence Supply Centers, March 1962 with Comparisons

Product	QUANTITY				VALUE			
	March		Jan.-Mar.		March		Jan.-Mar.	
	1962	1961	1962	1961	1962	1961	1962	1961
	(1,000 Lbs.)				($1,000)			
Tuna	-	-	3,113	1,365	-	-	1,739	603
Salmon	1,015	-	1,015	-	638	-	638	-
Sardine	3	24	10	60	2	12	6	29

Note: Armed Forces installations generally make some local purchases not included in the data given; actual total purchases are higher than shown because local purchases are not obtainable.

CORRECTION: Under this section on p. 17 of the May 1962 issue, the second paragraph should have read: "Prices paid for fresh and frozen fishery products by the Department of Defense in February 1962 averaged 72.9 cents a pound, about 16.0 cents more than paid . . ."

Gear

CONSTRUCTION OF A FISH WEIR:

A weir is a type of fixed entrapment gear. It consists of fences of brush or other non-textile materials constructed so as to intercept schools of feeding or migrating fish. These fences form successive enclosures (the heart, pound or bowl, and pocket) into which the fish are voluntarily directed by a fence (the leader). A weir is generally built each year in the same location since it is permanently fixed to the bottom. Fish are removed from weirs by seines or other devices.

Weirs are a popular means of fishing for sardines in Maine. But they are also used to catch other types of fish.

The photographs in this article show the building of an inshore fish weir at Barnstable Harbor, Mass.

The fish weir in this particular location was first erected in 1886 by Benjamin Lovell, the same year his grandson and present owner, Shirley D. Lovell, was born. It is put up in the early spring inside Barnstable Harbor near the Sandy Neck lighthouse, and is taken down in the late fall.

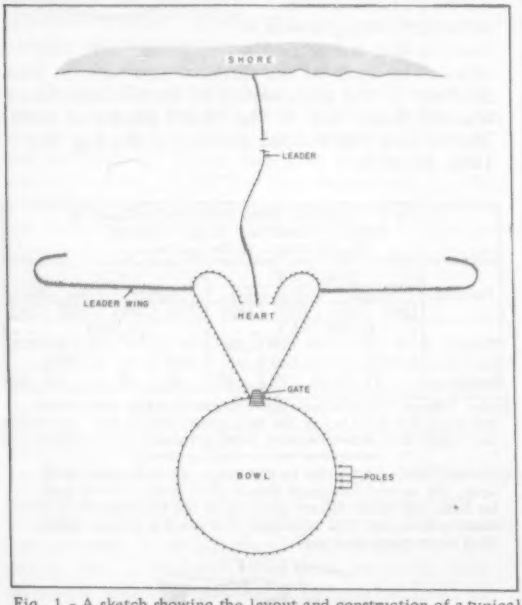


Fig. 1 - A sketch showing the layout and construction of a typical fish weir.

Large and small herring and sand launce are the first fish to be taken from this weir, followed later in the season by flounders, striped bass, menhaden, squid, and mackerel. The unwanted dogfish is usually heavily abundant during the latter part of the season.

Many species of Southern fish find their way to the trap, in large and small schools. These include jacks, dolphins, leather jackets, bonito, needlefish and, for some years now, one or two Atlantic salmon.

Fig. 2 - Putting in small trees for the shore leader. Using a water jet, driven by a small gasoline-powered pump on the skiff at left, a hole is dug 4 feet deep in the sand and the trees inserted 2 feet apart.

Fig. 3 - Setting one of the heart poles. Water temperature during this early spring operation averages 35-39 degrees F. Summer temperatures will go up into the 70's.

U. S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
SEP. NO. 651

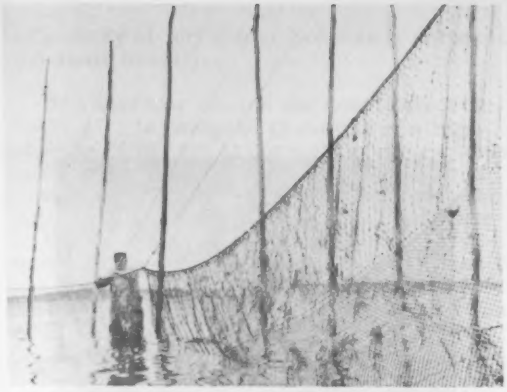


Fig. 4 - Tieing line to the net that forms the bowl. The net is then raised to a height of about 20-feet. The wider mesh (top, right) is out of water at high tide. The bowl is hung first, followed by the heart. Leaders and the flaking are set as time and low tide permit. Last step is the building of the gate.

Fig. 7 - Tieing wire to the shore leader. Collecting debris during the change of tide, the leader becomes a barrier directing the fish towards the bowl.

Fig. 5 - Setting the flaking inside the bowl.

Fig. 8 - Building the ramp for the bottom of the gate.

Fig. 6 - Raising the twine that forms the heart from the flaking to the top of the poles. Work on the weir is done at low tide which usually lasts no longer than 2 hours. Barnstable Harbor has a 9- to 12-foot tide.

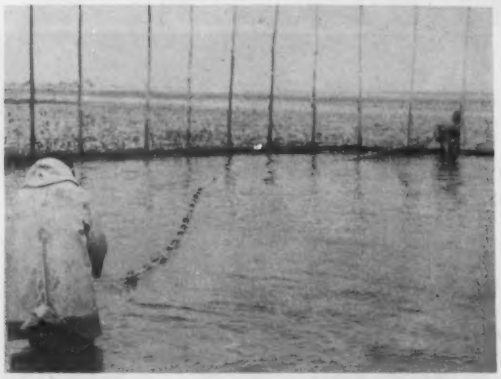


Fig. 9 - The seine net is set out inside the bowl.

Fig. 10 - A mixed catch in the seine. Pictured is the 1-inch size mesh used for the larger fish such as flounder and striped bass. A $\frac{1}{2}$-inch mesh is used for the smaller sand launce and herring.

Fig. 11 - Bailing striped bass from the seine to the skiff. One side of the bowl has been lowered and tied to the stern of the skiff.

Fig. 12 - A mixed catch made by a weir.

Fig. 13 - Unloading a mixed catch of striped bass, flounder, and menhaden at the wharf.[1]

--Robert K. Brigham, Photographer,
Biological Laboratory,
U. S. Bureau of Commercial Fisheries,
Woods Hole, Mass.

* * * * *

PATENTS ISSUED FOR NEW TRAWL DOOR AND NET FLOAT:

U. S. patents have been issued for a new type trawl door and a new type float for fishing nets, according to the April 1962 issue of Products List Circular, U. S. Small Business Administration, Washington, D. C.

The inventor claims the trawl door (Patent No. 3,007,274) is designed to keep the wings of the trawl net open and to maintain itself in a stabilized position at all fishing depths, also to reduce friction and drag as it is towed through the water, thus reducing power to tow; and is a hollow "turtle-back" shape having openings therein for permitting the water to flow through as the net is towed. That the interior of the hollow door is further provided with stabilizing plates having openings therein which tend to maintain the door on even keel. That the trawl door is hollow and open to the surrounding water and operates

efficiently at any depth because it partakes the same density.

The inventor claims the float (Patent No. 3,007,273) is designed to maintain a high opening of the net at normal trawling speeds and to reduce to a minimum the required towing power for dragging the net along the bottom in deep water. That the float tends to lift the net higher when the speed is increased, thus enabling more fish to be caught.

The inventor of both is G. K. Eggertsson of Winthrop, Mass.

Florida

FIRM INCREASES PRODUCTION OF CLAMS:

The President of a Placida, Fla., oyster firm reported on April 26, 1962, that it had shipped more clams out of Florida during March and April than were produced in the entire State in the previous two-year period (1960-1961). He said that the amount shipped does not even scratch the surface as far as the firm's production is concerned.

Florida's Director of Research stated that the supply of clams in Florida has not been exploited since World War II. He said that the State has almost unlimited stock and that new methods of cultivation along with a more rapid growth rate in Florida could easily make the State the number one clam-producing area of the world. Research of hatchery management and cultivation point to a great future for the clam industry.

The Director of the State's Board of Conservation added that with the knowledge of the clam stock, a stepped-up marketing program for the seafood will be started. He said that every effort is being made to increase the retail sales volume of Florida fishery products.

Georgia

FISHERY LANDINGS, 1961:

Total landings of fish and shellfish at Georgia ports in 1961 amounted to 20.5 million pounds--7.4 million pounds or 27 percent below 1960. The greatest drop occurred in the shrimp fishery with only 6.8 million pounds (heads-on) or 65 percent of the previous year's catch. The poor shrimp season and resulting decrease in fishing pressure brought about a general decline in landings of all finfish caught incidental to shrimp fishing.

The winter of 1961 was cold and wet with temperatures below normal during January and early February. Oyster-shucking plants were not constructed to operate in extremely cold weather and operations were curtailed during the coldest days.

Shrimp landings (4.1 million pounds, heads-off) were the lowest recorded since 1952, and were 2.1 million pounds below 1960. However, the ex-vessel price was only $204,000 less than in 1960 and averaged 58.5 cents per pound (heads-off) as compared with 41.6 cents received in 1960.

Catch of blue crabs made by a Georgia trawler.

The catch of hard crabs was the third best year on record with landings of 12.3 million pounds--a decrease of 3.5 million pounds compared with the record year 1960. This decrease is believed to be the result of reduced fishing effort due to a drop in demand rather than the non-availability of crabs.

The third best shad season since 1929 was experienced by the fishermen with landings of 404,000 pounds. Compared with 1960, this was a drop of 129,000 pounds. There was a decrease in the number of fishermen operating in the coastal rivers as high waters discouraged fishing activities.

Oyster production declined from 231,000 pounds of meats in 1960 to 158,000 pounds in 1961. Only four previous years (1938, 1956, 1957, and 1958) had a lower production. No oysters were canned by Georgia firms during 1961.

Great Lakes Fisheries

Exploration and Gear Research

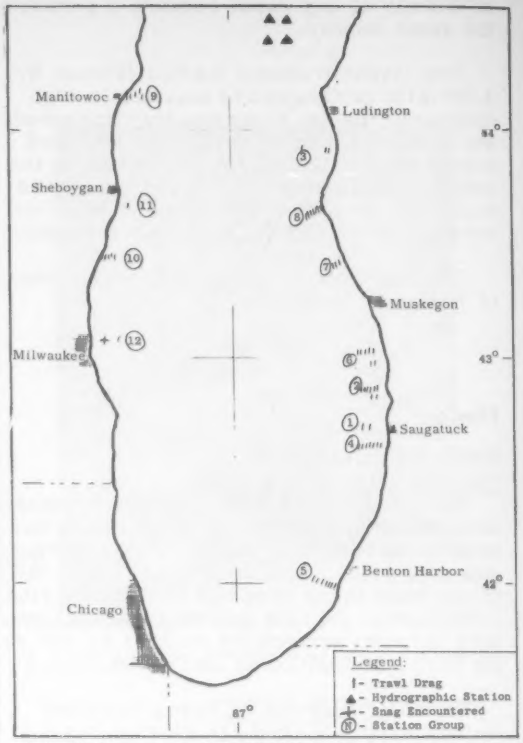
EXPLORATORY FISHING OPERATIONS IN SOUTHERN LAKE MICHIGAN:

M/V "Kaho" Cruise 1: The new 65-foot Great Lakes exploratory fishing and gear research vessel Kaho of the U. S. Bureau of Commercial Fisheries completed its first cruise of the 1962 season on April 18, 1962, after conducting exploratory fishing operations in southern Lake Michigan during the months of February, March, and April. The objectives of the three-phase cruise were to determine the bathymetric and seasonal distribution of various fish stocks and the availability of the fish species to standard Gulf of Mexico-type fish trawls. Unusually severe ice conditions hampered early cruise efforts.

A total of 57 drags were completed in various depths ranging from 9 to 45 fathoms. Best catches of chubs (Leucichthys sp.) were made off Port Washington in 19 to 41 fathoms of water where catch rates ranged from 42 to 918 pounds per hour. Significant catches of chubs were obtained as follows: 180-380 pounds per hour in 25-40 fathoms off Benton Harbor; 200-472 pounds per hour in 20-40 fathoms off Ludington; and 610-724 pounds per hour in 35-40 fathoms off Manitowoc. Smelt (Osmerus mordax) were caught in amounts of 350 pounds and 459 pounds per half-hour drag at 30 fathoms off Manitowoc and 20 fathoms off Port Washington, respectively. Although other species were caught, none were taken in amounts greater than 100 pounds per trawl tow.

A standard 50-ft. (headrope) Gulf of Mexico-type trawl net was used for all drags. Of the several door types fished, 7' x 30" bracket-rigged doors with 60-ft. dandyline gear were most satisfactory. Gear damage occurred only off Milwaukee at 20 fathoms.

In cooperation with the U. S. Department of Health, Education, and Welfare's Public Health Service, bathythermograph (BT) recordings were obtained from the deepest area of Lake Michigan off Frankfort, Mich., on two occasions. The BT temperature profiles are being used in a study of conditions affecting the extent and distribution of domestic and industrial waste. This information will also be used in Bureau studies to determine the influence of these conditions on reproduction, growth, and distribution of commercial species of fish.



Lake Michigan explorations M/V Kaho Cruise 1 (February 20-April 18, 1962).

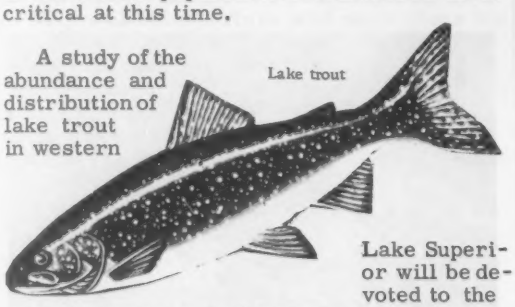
Samples of the bloater chub (L. hoyi) were collected for analysis of feeding habits by the Bureau's Biological Laboratory in Ann Arbor.

Note: See Commercial Fisheries Review, Jan. 1962 p. 17.

Great Lakes Fishery Investigations

RESEARCH VESSEL "SISCOWET" PROGRAM FOR 1962:

During 1962 the U. S. Bureau of Commercial Fisheries research vessel Siscowet will be used almost entirely in studies of young lake trout in Lake Superior. The special emphasis on lake trout was brought about by encouraging signs of reduction in sea lamprey predation and the increased survival of legal-size fish shown by the 1961 commercial catch. The need to follow closely changes in the lake trout population is considered most critical at this time.


Lake trout

A study of the abundance and distribution of lake trout in western Lake Superior will be devoted to the annual assessment of spawning populations of lake trout in the Apostle Islands region. Information will be gathered on the success of various stocking experiments, the survival of plantings made in recent years, the abundance of native lake trout in the juvenile population, and the seasonal distribution of the young trout. Otter trawls and experimental gill nets will be used to collect the data.

During the environmental studies at preselected limnological stations, special emphasis will be placed on the environmental requirements of young trout.

Data will be collected in Keweenaw Bay and at Isle Royale on the contribution of hatchery-reared lake trout to the native population and on the relative abundance of lake trout as compared to previous years.

Other operations will be devoted to the collection of material on the life history of whitefish and various aspects of the life history and distribution of various coregonids (whitefish species).

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LAKE MICHIGAN FISHERY SURVEY FOR 1962 SEASON:

The main objective in 1962 of the U. S. Bureau of Commercial fisheries research vessel Cisco will be to study the early life history of chubs. The Cisco will operate in Lake Michigan with Saugatuck, Mich., as home port. Few chubs have been collected as fry or fingerlings in the past, mostly because relatively little fishing has been done at midwater levels, where the young chubs live. Emphasis this year will be on midwater fishing with trawls, large-mesh plankton nets, and possibly small-mesh gill nets.

A second objective will be to study fish distribution in the area where the thermocline touches the lake bottom--generally at depths of 10 to 15 fathoms in Lake Michigan. Past experience has shown that catches may differ widely with little change in depth in that zone, probably because the temperature changes are so great. Studies in this area should yield information on temperature preferences of fish of the various segments of the population.

Material for the serological study of chubs, which is being conducted by a graduate student at the University of Michigan, will be collected during each cruise. Preliminary processing of some of the material will be done on the Cisco. The Laboratory's primary interest in the study is in the possible development of a more positive method for the identification of the various species of chubs.

The Bureau has entered into an agreement with the U. S. Public Health Service (PHS) for the use of the Cisco for collection of limnological data in Lake Michigan for two 15-day cruises during the spring. The Cisco's regular vessel crew will be used, but the PHS will furnish the scientific staff. One or two staff members of the Bureau's Ann Arbor Biological Laboratory will also be aboard to act in an advisory capacity. The PHS will make collections and observations for the study of water chemistry, currents, bottom fauna, plankton, and bacteria.

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LAKE ERIE FISH POPULATION SURVEY FOR 1962 SEASON BEGINS:

M/V "Musky II" (March 1962): The 1962 field operations of the U. S. Bureau of Commercial Fisheries research vessel Musky II on Lake Erie were begun on April 1. The 1962 activities will be similar to those in 1961. The fishery unit stationed at Sandusky and the Limnological staff from the Bureau's

Ann Arbor Biological Laboratory will again conduct closely related studies in a coordinated program.

A study of the variability in trawl catches in a given area within a short period of time, begun in 1960, will be continued at the Bono and East Harbor stations during the spring, summer, and fall. On 3 consecutive days in each season, two 10-minute hauls will be made with a standard bottom trawl at each of three depths, during the morning, afternoon, and evening (total of 54 tows at each station during each season). Collections during the series and during regular bimonthly trawling at East Harbor and Sandusky Bay will provide material for life-history studies of various species.

Intensive sampling with fry nets and experimental trawls will be made during the spring to determine localities and dates of spawning of several species, and to estimate spawning success.

Extensive collections of fish, bottom fauna, and plankton will be made, and water temperature, transparency, and chemistry will be determined at seven index stations originally established in the western basin in 1958.

Special studies will be undertaken to obtain more knowledge of the effect on fish of the severe depletion of dissolved oxygen which occurs in the central basin. Emphasis will be placed on the effect of this oxygen deficiency on fish distribution, food habits, behavior, and survival.

The semiannual sampling of the major species in the commercial catch will continue as in previous years. The spring sampling was expected to be under way by late April.

Commercial operations in March were slow to start in Ohio and elsewhere, in spite of the official opening of the fishing season. Extensive ice in all parts of the lake restricted the activities to a small amount of gill-netting. Catches were reported to be mediocre, considering the amount of effort expended.

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CHEMICAL TREATMENT FOR LAKE SUPERIOR STREAMS TO ERADICATE SEA LAMPREY:

The continuing battle against sea lamprey by chemical treatment will be waged this year in 32 lake trout streams tributary to Lake Superior and the St. Marys River, the U. S. Bureau of Commercial Fisheries reports.

Under a permit issued recently by the Michigan Conservation Department, the Bureau hopes to re-treat 24 Lake Superior streams. It also plans to make its first chemical attack on the lamprey in 6 Lake Superior streams and 2 tributaries to the St. Marys River where studies reveal the presence of young sea lamprey.

Perforated hose used to introduce chemical into stream.

Chemical treatments were scheduled to get under way in late April, starting in streams of the western upper peninsula. By the end of June, this work was scheduled to be completed in Carlton Creek and Big Munuscong River, Chippewa County; Au Train River, Alger County; Boston-Lilly Creek, Pilgrim River, and Gravaraet River, Houghton County; and Iron River, Marquette County.

Treatment of Carlton Creek and Big Munuscong River will match work already completed by Canada in its streams along the north channel of the St. Marys River.

Of the streams listed for treatment this spring, all but the Au Train and Iron Rivers are new to the lamprey control program. Three Mile Creek and Dead Sucker River, Luce County, and Otter River, Baraga County, are also due for initial treatment during the year.

Since 1958 when the chemical war on sea lamprey began, 75 Lake Superior streams

have been treated, 52 of them in Michigan. Latest survey results show that the program has reduced considerably the rate of fresh lamprey scarring on lake trout in different areas of Lake Superior.

During 1961, treatments were made in 33 lamprey-producing streams along the north shore of Lake Michigan. Surveys nearing completion in April 1962 point up the production of sea lamprey in 53 other Lake Michigan streams.

Lamprey control efforts will be continued in the Lake's northern streams during 1962 if they will not interfere with work plans for the Lake Superior tributaries. Scope of the Lake Michigan program will also depend on whether there are further encouraging signs of lamprey reduction at electrical barriers in Lake Superior streams this spring.

Gulf Exploratory Fishery Program

MIDWATER TRAWLING AND ESCAPEMENT BEHAVIOR OF PELAGIC FISH STUDIED:

M/V "Oregon" Cruise 77: To complete measurements of performance on three different experimental midwater trawls and six types of otter boards, and to continue motion picture studies of the reaction of pelagic sardine-like fish to midwater trawling gear in the Mississippi Delta area were the principal objectives of the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Oregon. The cruise was conducted in nine intermittent phases between January 18 and April 3, 1962.

A total of 61 stations was completed in the Mississippi Delta area, most of which were devoted to gear mechanics studies. A total of 12,700 feet of motion picture film was exposed using remote-controlled underwater cameras placed inside the trawl and along the headrope. Heavy turbidity severely affected most of the footage, but fair to excellent results showing gear performance and reactions of several species of fish within the net were obtained on 3,300 feet. In general, the most abundant species, thread herring (Opisthonema oglinum), butterfish (Poronotus triacanthus), and razorbellies (Harengula pensacolae) were found to concentrate heavily in the body and throat of the trawl. There they showed remarkable tenacity and endurance in maintaining their relative position within the trawl, swimming vigorously forward, and not becoming disoriented in even the most turbid water. Endurance determinations will require detailed studies of the films, but in general the movement of fish back through the net toward the cod end seemed slight at towing speeds of 4 knots or less. The few observations at faster speeds indicated some disorientation. Anchovies (Anchoa hepsetus) appeared to be quite passive and displayed no discernible escapement reactions.

Several hundred feet of film were exposed in small cameras mounted on the headrope and upper wings. The complete absence of fish in the camera fields indicates that most fish enter near the footrope. However, no cameras were mounted on the footrope owing to frequent encounters with the bottom during haul-back.

Note: See Commercial Fisheries Review, Nov. 1961 p. 23.

Gulf Fishery Investigations

Some of the highlights of studies conducted by the Galveston Biological Laboratory of the U. S. Fish and Wildlife Service, Bureau of Commercial Fisheries during January-March 1962:

ESTUARINE PROGRAM: Ecology of Western Gulf Estuaries: Scheduled field work continued during the first quarter of 1962 in the three study areas of Clear Lake, Offats Bayou, and Trinity Bay. Some difficulty was experienced in obtaining samples on schedule from Trinity Bay because of inclement weather.

The dominant species of fish, such as the croaker, anchovy, spot, and menhaden, occurred in expected numbers, but there was a delay of a couple weeks in the occurrence of young menhaden in quantity, possibly due to the effects of the extended freeze in January. Two groups of organisms, differing in their occurrence from 1961, include postlarval shrimp and very small (8-12 mm.) flatfish.

Postlarval shrimp (probably brown shrimp) first occurred in the Trinity Bay samples on March 2, which is somewhat earlier than last year. The distribution of postlarval shrimp was also interesting: the Cross Bayou station in the northwest corner of Trinity Bay, farthest from the pass at Galveston, produced approximately five times as many post-

larval shrimp as each of the two stations in the southern part of Trinity Bay.

Effects of Engineering Projects: During the quarter 56 appraisals were made of engineering projects potentially affecting estuarine fishery resources, under the present system of coordination with the Branch of River Basin Studies; only three did not involve Texas estuarine waters. The majority resulted from the more than 85 Corps of Engineers public notices and letters received during the quarter, and screened to determine which projects could materially affect estuarine and marine fishery resources. Sampling at 12 stations in Trinity Bay was continued through January on a weekly basis, when conditions permitted, in connection with a study of the effects of the Wallisville and Livingston Dam Project (CE) upon bay fauna.

Research relative to the Colorado River Special Study was initiated in February, and 10 stations were established in Matagorda and East Matagorda Bays, the Intracoastal Waterway, and the lower Colorado River to determine the effects of proposed consumptive water usage upon marine fishery resources. Sampling at each station includes both surface and bottom salinity and temperature measurements and a trawl haul for biological specimens. An additional station at Parker's Cut, between the Colorado River and the eastern arm of Matagorda Bay, was established for sampling only salinity and temperature, since the depths are too irregular for trawling. Additional data are being recorded for meteorological conditions and for salt wedge intrusions into the river and into Parker's Cut.

SHRIMP FISHERY PROGRAM: Migrations of Pink Shrimp: A mortality experiment involving pink shrimp on the Sanibel grounds was begun on March 19, 1962, using the Bureau of Commercial Fisheries exploratory fishing vessel Silver Bay. Shrimp ranging from 20 to 53 mm. carapace length were marked with fast green FCF. A total of 2,496 shrimp was released in 26 releases, using the underwater release box. As of March 27, 1962, two marked shrimp were recovered. As a part of the recovery phase, a series of experiments will be conducted to estimate the number of stained shrimp recaptured but not discovered on the shrimp vessels or in the heading houses.

Shrimp Spawning Populations: Stained sections of ovaries from an additional 400 brown shrimp, Penaeus aztecus, were examined during the quarter. As observed in earlier collections, females taken from deeper waters generally had more advanced ovaries. Of the brown shrimp ovaries taken from September through December 1961 at $7\frac{1}{2}$- and 15-fathom stations, less than 27 percent had advanced beyond the developing stage. More than half the brown shrimp from the 25-fathom stations were in the yellow or further advanced stages, and 16 percent of those taken in 45 fathoms were ripe or spent.

Shrimp Larval Studies: An illustrated key to larval Penaeidae (genus only) was completed. Including only forms known to occur in the northern Gulf, the key treats protozoeal, mysis, and postlarval stages, and is now being tested through use in the laboratory.

Continuing attempts to differentiate species of Sicyonia larvae found in the plankton samples reveal slight morphological differences in the protozoeal stages but none in the mysis stages.

At the end of the first quarter, ripe specimens of brown shrimp and Trachypeneus were obtained in experimental hauls by the M/V Silver Bay midway between New Orleans and Galveston. Immediately after being brought into the laboratory, representatives of both species released large numbers of viable eggs. Trachypeneus eggs began to hatch soon thereafter, whereas, none of the brown shrimp eggs survived.

During the quarter 43 plankton samples collected during October, November, and December 1961 were examined for penaeid larvae.

In July, August, and September of 1961 penaeid larvae were distributed over the entire sampling pattern. This distribution did not persist through the ensuing 3 months, however. Nauplii and protozoea occurred at the $7\frac{1}{2}$-fathom stations only until October, while mysis and postlarvae persisted until the end of November. At the 15-, 25-, and 45-fathom stations, all stages of penaeid larvae were encountered. The majority of protozoea and mysis larvae occurred at the 15- and 25-fathom stations while most postlarval shrimp were encountered at the 25-fathom stations.

The relative abundance of penaeid larvae decreased markedly at all stations in late

November and December, reaching a low comparable to that of January 1960.

A drift bottle and seabed drifter study was initiated in February in order to supplement the current meter and temperature/salinity measurements made at each monthly station. In February and March, 1,384 drift bottles and 702 seabed drifters were released at stations located from the mouth of the Mississippi River to Brownsville, Texas. At the end of March, 3 percent of the drift bottles and less than 1 percent of the seabed drifters had been recovered. From the initial drift bottle recoveries, it appears that there is a strong, westerly surface current. Due to the meager recoveries of seabed drifters very little can be said at this time concerning bottom currents.

Migrations of Brown and White Shrimp: Experiments to test the suitability of various inks, and flourescent dyes and pigments as primary or secondary marking agents were initiated during the quarter.

Of the eight inks tested on small white shrimp (70-100 mm.), Bates numbering machine inks--green, blue, and black--showed the most promise. The inks are easily seen in the branchial region of the shrimp up to 43 days after staining. The "control" shrimp, injected with sterile double-distilled water, showed significantly less mortality than the stained shrimp.

A second experiment still in progress and using the same species and size range of shrimp, indicates Sanford numbering machine inks--red, blue, and black and two fluorescent pigments, Day-Glo blaze orange and neon red--also have possibilities as secondary marks.

An experiment using fast green with Rhodamine B, a fluorescent dye, as a secondary mark, showed the latter dye to have almost completely disappeared 5 days after staining.

Publicity was completed for the offshore marking experiments commencing on March 30. Posters describing the program and recovery kits were distributed from Brownsville, Tex., to Bayou LaBatre, Ala.

Commercial Catch Sampling: Sampling of the size and species composition of commercial shrimp landings continued at the Port of Galveston. Additional sampling stations were established at Aransas Pass, Texas, and Morgan City, La. The biologist at Aransas Pass covers landing activities at the neighboring ports of Fulton Beach and Rockport, while the biologist at Morgan City collects information from the ports of Berwick and Patterson.

Landings during the first quarter were scattered and below average in quantity, primarily because of weather.

Sampling and recording procedures have been standardized, and a small tape recorder was tested and is now used for rapid recording of shrimp measurements during unloading and processing at the docks. Additional data are being obtained from all commercial species on the tail length and total length relationship.

A total of 11,900 shrimp of three species was measured during the quarter--9,500 brown, 2,200 white, and 200 pink shrimp.

Bait Shrimp Fishery: Final tabulation disclosed that bait shrimp production in the Galveston Bay area totaled 731,200 pounds in 1961 compared with the previous year's total of 943,400 pounds.

Most of the bait shrimp retailed in the Galveston area during the first quarter of 1962 originated offshore in the Gulf of Mexico, Matagorda Bay, or Sabine Lake.

Postlarval Shrimp Survey: Semiweekly monitoring of postlarval shrimp moving into Galveston Bay continued during the quarter; the greatest number (1,220) were sampled on February 26. Great variations in number between sampling periods appeared to be related to fluctuations in temperature. Following rapid drops in temperature, very few postlarvae were collected, and on two occasions great numbers of dead postlarval shrimp were noted.

INDUSTRIAL FISHERY PROGRAM: Atlantic croaker, spot, and sea trout continued to dominate landings which fell slightly below 17 million pounds in the first quarter of 1962, a 25-percent drop from production during the corresponding quarter a year earlier.

Monthly indices of collective abundance of fish supporting the upper Gulf's industrial trawl fishery were computed from statistics of 290 vessel trips covering the period October 1960-March 1961. The average catch per tow by smaller vessels operating east of the Delta ranged from 0.32 ton (Feb.) to 0.75 ton (Oct.), and decreased 42 percent during the first quarter this year. Catches per unit of effort of large vessels (over 60 feet long) fishing west of the Mississippi Delta varied between 0.38 ton (Oct.) and 1.00 ton (Dec.), and decreased steadily from December through March. The over-all average for the 6-months period was nearly equal in both areas.

Continuing analysis of data secured during 1961 in sampling operations off western Louisiana and eastern Texas indicates that concentrations of fish having commercial potential are greatest in nearshore waters (to 20 fathoms) during summer months, and in deeper shelf waters (20-50 fathoms) in winter.

Cursory investigation of food preference in the more abundant species disclosed that shrimp constituted the major if not the primary element in the diets of most. Several kinds of shrimp were represented among the fish-stomach contents, but noncommercial species greatly outweighed those of commercial importance.

Note: See Commercial Fisheries Review, Dec. 1961 p. 32.

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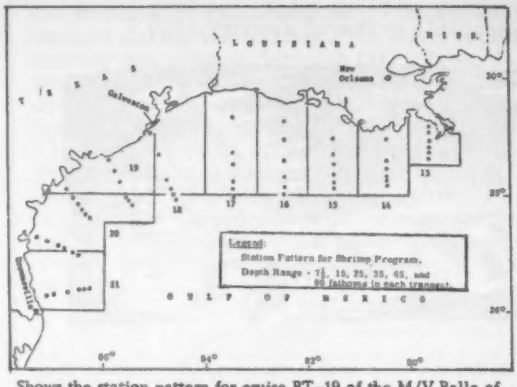
SHRIMP DISTRIBUTION STUDIES:

M/V "Belle of Texas" Cruise BT-19 and "Miss Angela" Cruise MA-13: Only moderate catches of shrimp were made by the research vessels M/V Belle of Texas and the M/V Miss Angela between April 18-27, 1962. Both of the vessels are operated by the Galveston Biological Laboratory of the U. S. Bureau of Commercial Fisheries in studying the distribution of shrimp in the Gulf of Mexico.

A total of 9 statistical areas were covered. One 3-hour tow was made in each of 3 depth ranges in each area. A 45-foot shrimp trawl



Shows the station pattern for cruise BT-19 of the M/V Belle of Texas and cruise MA-13 of the M/V Miss Angela, April 18-27, 1962.

was used. Most of the catches consisted of brown shrimp, but there were a few catches in which white and pink shrimp were found. The largest single catch was 31 pounds (all brown) of 12-15 count shrimp in 20-40 fathoms in area 14. This same area yielded 6 pounds of 12-15 count brown shrimp in the 40-60 fathom range and 1 pound of 12-15 and 15-20 count shrimp in the 0-20 fathom range. The catch in area 15 consisted of 21 pounds of 15-20 count brown shrimp in the 20-40 fathom range, 22 pounds of 12-15 count brown shrimp in the 40-60 fathom range, and 4 pounds of 21-25 count white shrimp in the 0-20 fathom range.

Hawaii

YIELD OF SKIPJACK TUNA FISHERY THIS YEAR EXPECTED TO BE BELOW AVERAGE:

Since 1959 annual predictions for the skipjack tuna fishery, in terms of above or below average catch, have been made to the Hawaiian fishing industry by the Honolulu Biological Laboratory of the U. S. Bureau of Commercial Fisheries. Such predictions are of considerable value to the industry, for changes in skipjack availability result in total annual landings ranging from 6 to 14 million pounds. The prediction can usually be made by the end of March and therefore is well ahead of the peak fishing months of June and July.

The forecast is based on an empirical relationship between annual landings and an

oceanographic index derived from weekly sea water surface temperatures at Koko Head on the island of Oahu. Since adequate data first became available in 1951, it has been found that better than average landings followed when the initial heating at Koko Head occurred before the end of February and poorer than average landings followed when initial heating occurred during March. There have been no exceptions to this relationship.

This year, the initial heating occurred in March and it is therefore believed that availability of skipjack to the Hawaiian fishery will be somewhat below average.

A skipjack catch waiting to be unloaded.

The initial heating index can best be obtained from the Koko Head heating curve showing the monthly rate of change of surface temperature. The shape of this curve, as well as the time of initial heating, reflect oceanographic conditions or "the oceanographic climate" in the Hawaiian region. The sequence of observations is now sufficiently extended that years with similar oceanographic climates can be recognized.

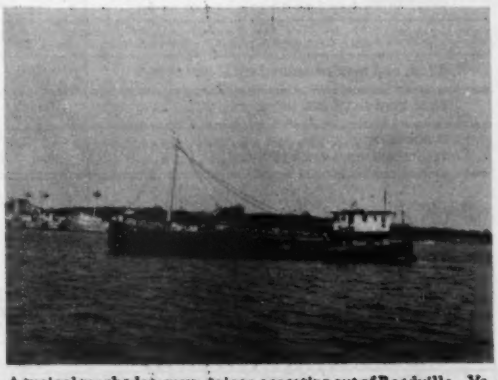
Two groups of years are easily identifiable from the shape of their heating curves. The years within each group had similar skipjack catch rates. The years 1954, 1959, and 1961 were marked by early heating, followed by a period of cooling and another major period of heating; skipjack catch rates were the best of the past decade. By contrast, the years 1955 and 1960 were characterized by late initial heating, followed immediately by the major heating period and lacking the intervening cooling period; skipjack catch rates during those years were all lower than average. Recognizing these patterns, it is believed that the oceanographic conditions for 1962 will be similar to those of 1955 and 1960, and on the basis of similar catch rates, we add to the 1962 forecast of below average landings, that the catch rates will probably be similar to those of 1955 and 1960.

As important as these forecasts based on the empirical associations between oceanographic conditions and the availability of fish are, it is even more important for long-range benefits to gain an understanding of the significance of these associations. To this end, on the basis of the oceanographic climate and certain hypotheses regarding skipjack occurrence, it is believed that the center of skipjack availability will be displaced northwestward along the Hawaiian Island chain during 1962. Records of catch locations for 1955 and 1960 show a trend in this direction. If it is possible to do so, it is planned to test this hypothesis during the coming summer and thus add to our understanding of this valuable resource.

Industrial Fishery Products

U. S. FISH MEAL AND SOLUBLES:

Production and Imports, January-February 1962: Based on domestic production and imports, the United States available supply of fish meal for the first 2 months of 1962 amounted to 49,000 tons--20,300 tons or 71 percent above the same



A typical menhaden purse-seiner operating out of Reedville, Va.

U. S. Supply of Fish Meal and Solubles, January-February 1961-62 and Total for 1961			
Item	January-February		Total
	1962 1/	1961	1961
	(Short Tons)		
Fish Meal and Scrap:			
Domestic production:			
Menhaden	-	-	247,551
Tuna and mackerel	2,928	2,880	21,243
Herring, Alaska	-	-	3,810
Other	1,870	1,946	38,661
Total production	4,798	4,826	311,265
Imports:			
Canada	5,757	3,898	38,218
Peru	35,231	17,334	151,439
Chile	1,157	1,061	12,074
Angola	-	-	1,543
So. Africa Republic	2,000	1,486	13,026
Other Countries	101	96	1,545
Total imports	44,246	23,875	217,845
Available fish meal supply	49,044	28,701	529,110
Fish Solubles:			
Domestic production 2/	3,114	2,985	111,254
Imports:			
Canada	208	194	1,001
So. Africa Republic	-	180	1,351
Other Countries	2,314	-	4,387
Total imports	2,522	374	6,739
Available fish solubles supply	5,636	3,359	117,993

1/Preliminary.
2/50 percent solids. Includes production of homogenized condensed fish.

period of 1961. Domestic production was slightly less, but imports were nearly 20,400 tons greater than in the 2-months period of 1961. Peru continued to lead other countries with shipments of 35,200 tons during the first 2 months of 1962--slightly more than twice the quantity imported in the same period of the previous year.

The total United States supply of fish meal in 1961 of 529,100 tons exceeded the peak year 1959 when the quantity amounted to almost 440,000 tons.

The United States supply of fish solubles (including homogenized fish) during January-February 1962 totaled 5,600 tons--2,300 tons more than during the same period in 1961. Solubles and homogenized fish of 3,100 tons manufactured from domestically-caught fish made up 55 percent of the 2 months supply in 1962.

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FISH MEAL, OIL, AND SOLUBLES:

U.S. Production and Foreign Trade, February 1962: In February 1962, 2,100 tons of fish meal and scrap and 49,100 gallons of marine animal oils were produced in the United States. Compared with February 1961, this was a decrease of 1 percent in meal and scrap production, but an increase of 4 percent in oil.

In February 1962, tuna and mackerel accounted for 1,300 tons or 62 percent of the meal total, and 34,700 gallons or 71 percent of the oil production.

There were 1,500 tons of fish solubles produced in February 1962--54 tons above the same month of 1961. The

Table 1 - U.S. Production of Fish Meal, Oil, and Solubles, February 1962 with Comparative Data

Product	February		Jan.-Feb.		Total
	1962 1/	1961	1962 1/	1961	1961
	(Short Tons)				
Fish Meal and Scrap:					
Alewife	-	-	-	-	89
Herring:					
Alaska	-	-	-	-	3,810
Maine	-	-	-	-	1,374
Menhaden 2/	-	-	-	531	247,551
Sardine, Pacific	234	-	689	-	2,518
Tuna and mackerel	1,287	1,313	2,928	2,880	21,243
Unclassified	545	775	1,181	1,415	24,380
Total	2,066	2,088	4,798	4,826	300,965
Shellfish and marine animal meal and scrap	3/	3/	3/	3/	11,090
Grand total meal and scrap	3/	3/	3/	3/	312,055
Fish solubles	1,476	1,422	2,984	2,840	112,086
Homogenized condensed fish	90	80	130	145	11,690
	(Gallons)				
Oil, body:					
Alewife	-	-	-	-	12,053
Herring:					
Alaska	-	-	-	-	727,517
Menhaden 2/	-	-	-	10,050	31,355,570
Sardine, Pacific	4,911	-	19,111	-	86,167
Tuna and mackerel	34,696	24,055	72,512	51,908	762,509
Other (including whale)	9,517	23,194	51,747	48,332	1,464,989
Total oil	49,124	47,249	143,370	110,290	34,408,805

1/Preliminary data. 2/Includes a small quantity produced from thread herring. 3/Not available on a monthly basis.

View of menhaden reduction plant at Reedville, Va.

production of homogenized condensed fish amounted to 90 tons--a slight gain compared with February 1961.

Imports and Exports, January 1962: Imports of fish meal and scrap in January 1962 (25,400 tons) were 167 percent greater than in January 1961, and imports of fish solubles (273 tons) were up 25 percent. Exports of fish oils and fish-liver oils in January 1962 amounted to 509,300 pounds compared with 13.4 million pounds in January 1961.

Table 2 - U. S. Foreign Trade in Selected Industrial Products, January 1962 with Comparative Data

Product	January		Total
	1962 1/	1961	1961
	(Short Tons)		
Imports:			
Fish meal and scrap	25,427	9,531	217,845
Fish solubles	273	219	6,739
	(Gallons)		
Whale oil, sperm (crude and refined)	303,034	361,237	7,807,625
	(Pounds)		
Exports:			
Fish and fish liver oils	509,259	13,448,795	122,485,721
Whale and sperm oil	13,982	-	1,205,674

1/Preliminary data.

* * * * *

United States Major Indicators, March 1962: For the first two months of 1962, production and imports of fish meal and solubles were up as compared to the same months in 1961. Production of fish oil and exports were also up.

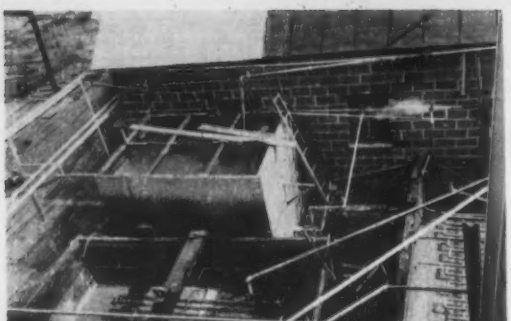
Major Indicators for U.S. Supply of Fish Meal, Solubles, and Oil, March 1962

Item and Period	1962	1961	1960	1959	1958
	(Short Tons)				
Fish Meal:					
Production 1/:					
May	-	32,922	17,194	25,312	17,433
April	-	6,179	5,076	6,810	5,143
March	2,700	2,751	2,955	2,122	2,601
Jan.-Feb.	4,798	4,263	4,191	5,223	3,917
Jan.-Dec. preliminary tot. 2/	-	289,039	257,969	275,396	226,299
Jan.-Dec. final tot.	-	311,265	290,137	306,551	248,140
Imports:					
May	-	24,753	9,496	16,329	8,949
April	-	19,060	10,397	17,654	11,758
March	-	20,458	18,652	16,719	7,233
February	18,158	14,344	8,081	19,463	11,219
January	25,427	9,531	8,571	19,700	7,696
Jan.-Dec. totals	-	217,845	131,561	132,955	100,352
	(Short Tons)				
Fish Solubles:					
Production 3/:					
May	-	12,667	7,370	18,639	9,351
April	-	2,539	2,870	6,987	3,619
March	1,362	2,295	2,462	2,382	1,371
Jan.-Feb.	3,114	2,651	3,509	4,124	2,518
Jan.-Dec. totals	-	111,254	98,929	165,359	130,177
Imports:					
May	-	283	59	4,874	1,405
April	-	220	134	1,622	45
March	-	135	87	410	84
February	2,249	155	1,875	398	149
January	273	219	214	954	473
Jan.-Dec. totals	-	6,739	3,174	26,630	14,567
	(1,000 Gallons)				
Fish Oils:					
Production:					
May	-	4,367	1,768	2,604	2,166
April	-	439	248	436	200
March	47	63	66	42	84
Jan.-Feb.	143	98	105	102	95
Jan.-Dec. preliminary tot. 2/	-	33,471	26,690	24,418	21,957
Jan.-Dec. totals 2/	-	34,416	27,886	24,978	22,028
Exports:					
May	-	426	324	1,455	293
April	-	980	761	1,116	254
March	-	753	421	600	1,664
February	2,886	2,327	3,177	999	1,038
January	68	1,793	276	898	825
Jan.-Dec. totals	-	16,331	19,155	19,264	12,539

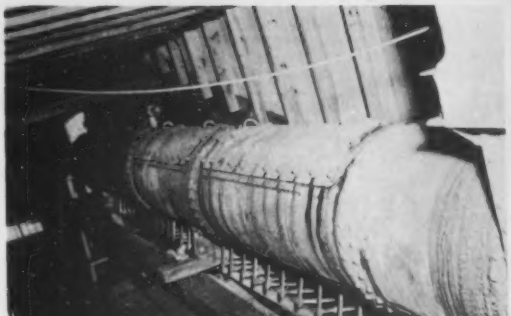
1/Does not include crab, shrimp, and misc. meals.
2/Preliminary data computed from monthly data. Fish meal production reported currently comprised 86 percent of the annual total for 1958, 90 percent for 1959, 89 percent for 1960, and 92 percent for 1961. Fish oil production reported currently accounted for over 95 percent of the total production each year.
3/Includes homogenized fish.
Note: Data for 1962 and 1961 are preliminary.

* * * * *

U. S. Production, March 1962: Preliminary data on U. S. production of fish meal, oil, and solubles for March 1962 as collected by the U. S. Bureau of Commercial Fisheries and submitted to the International Association of Fish Meal Manufacturers are shown in the following table.



Another view of menhaden reduction plant at Reedville, Va.



Cookers used to process fish at a menhaden plant in Reedville, Va.

U.S. Production 1/ of Fish Meal, Oil, and Solubles, March 1962 (Preliminary) with Comparisons

Region	Meal	Oil	Solubles	Homogenized
	Short Tons	1,000 Gallons	Short Tons	
March 1962:				
East & Gulf Coasts	899	10	229	3/ 100
West Coast 2/	1,886	37	1,533	-
Total	2,785	47	1,762	100
Total:				
Jan.-Mar. 1962	8,248	186	5,017	230
Jan.-Mar. 1961	7,556	162	4,986	295

1/Does not include crab meal, shrimp meal, and liver oils.
2/Includes Hawaii, American Samoa, and Puerto Rico.
3/Includes condensed fish.

* * * * *

U. S. Production, 1961: The production of industrial fishery products by 170 plants in the United States, American Samoa, and Puerto Rico in 1961 was valued at $74.5 million to the processors.

Final data for 1961 shows that production of fish scrap and meal amounted to 311,000 tons valued at $32 million to the processors. This was 21,000 tons more than in 1960 and exceeded the previous record established in 1959 by nearly 5,000 tons. Menhaden meal accounted for 80 percent of the total production of fish meal.

Production of fish and fish-liver oils in the United States and Puerto Rico totaled nearly 35 million gallons. The production was 23 percent above that of 1960 but below the record 40 million gallons produced in 1936. Menhaden oil established a new record and accounted for 91 percent of the 1961 production.

The yield, during 1961, of homogenized condensed fish (nearly 12,000 tons) was about 2,000 tons above that of the previous year. Production of fish solubles (100,000 tons) was about 10,000 tons larger than in 1960.

Maine Sardines

CANNED STOCKS, APRIL 1, 1962:

Distributors' stocks of Maine sardines totaled 148,000 actual cases on April 1, 1962--119,000 cases or 45 percent less than the 267,000 cases on hand April 1, 1961. Stocks held by distributors on January 1, 1962, amounted to 193,000 cases, and on November 1, 1961, totaled 202,000 cases, according to estimates made by the U. S. Bureau of the Census.

Canners' stocks on April 1, 1962, totaled only 45,000 standard cases (100 3¾-oz. cans), a decline of 461,000 cases (91.0 percent) as compared with April 1, 1961. This reflected one of the shortest packs in recent years for 1961. Stocks held by canners on January 1, 1962, amounted to only 144,000 cases and on November 1, 1961, totaled 221,000 standard cases.

The Maine Legislature authorized a 1962 season of 13 months--December 2, 1961-

Canned Maine Sardines--Wholesale Distributors' and Canners' Stocks, April 1, 1962, with Comparisons

Type	Unit	1961/62 Season			1960/61 Season					1959/60 Season		
		4/1/62	1/1/62	11/1/61	7/1/61	6/1/61	4/1/61	1/1/61	11/1/60	7/1/60	6/1/60	4/1/60
Distributors'	1,000 actual cases	148	193	202	208	215	267	233	277	172	197	252
Canners'	1,000 std. cases 2/	45	144	221	201	294	506	1,029	1,258	359	235	397

1/Table represents marketing season from November 1-October 31.
2/100 3¾-oz. cans equal one standard case.

January 1, 1963. The 1961 season was from April 15 to December 1, the usual legal packing season for canned sardines in Maine. But as of the end of March 1962 the extended season had not yielded very much. The pack December 2, 1961, to April 7, 1962, was only 15,541 standard cases. And as of April 30, 1962, there were no indications of an early spring run of sardines. What sardines were landed were caught by purse seiners in offshore waters. But the industry was still looking forward to a normal pack for 1962. Heavy landings were not expected until the end of May.

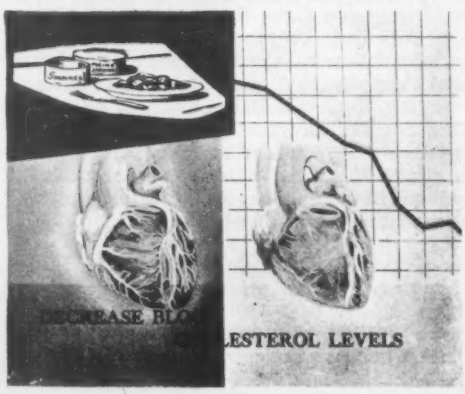
Shipments from April 15, 1961, to April 1, 1962, of 1,087,000 cases were substantially less than the 1,794,000 cases shipped in the same period a year earlier. The drop in shipments was due almost entirely to the small 1961 pack.

Note: See Commercial Fisheries Review, March 1962 p. 21.

* * * * *

RESEARCH SUGGESTS
CANNED MAINE SARDINES
PROMOTE HEALTHIER ARTERIES:

A researcher told the Federation of the American Society for Experimental Biology in Atlantic City on April 16, 1962, that frequent substitution of a can of Maine sardines, for other calories in the diet, produces a desirable effect on the blood of humans that may contribute towards the prevention of arteriosclerosis.



Dr. T. F. Kelley of Bio-Research Consultants, Cambridge, Mass., reported this finding in a paper on recent research conducted by his organization.

He said that in the work, carried on in laboratories and hospitals, 62 patients with high serum cholesterol ate one can of Maine sardines a day ranging from one week to six months.

"It was found that their total serum lipids or fats decreased significantly during these periods," he stated.

Dr. Kelley further explained that the beneficial effect can be explained to some extent by the ingestion of polyunsaturated fats contained in Maine sardines.

"If a recent statement by the American Heart Association that reasonable substitution of polyunsaturated fats for saturated fats is recommended as a possible means of preventing arteriosclerosis and decreasing the risks of heart attacks and strokes, is valid, the present observations suggest that a similar effect may be achieved to some extent by substituting one can of Maine sardines a day for a portion of the diet," he added.

The Maine Sardine Council Chairman hailed the findings as a significant development for the State's big sardine industry.

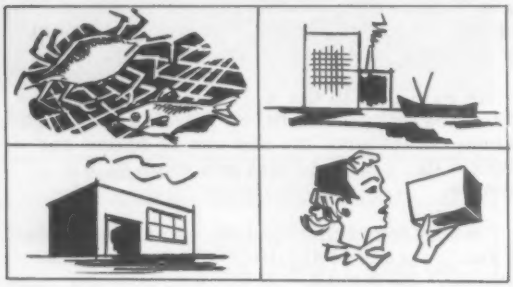
"We have always known that Maine sardines were a highly nutritive and healthful food and this further supports our contention as did animal feeding experiments at Massachusetts Institute of Technology last year," he said.

In the latter experiments animals fed a diet of sardines showed a much lower cholesterol level than those on a diet of a well known household type of saturated fats. (Maine Sardine Council, Augusta, Maine, news release of April 16, 1962.)

Marketing

EDIBLE FISHERY PRODUCTS MARKETING PROSPECTS, SUMMER 1962:

Consumption of fishery products during 1961 in the United States reached almost 11 pounds per capita, an increase of about one-half pound over the rate in 1960. During the summer of 1962, it is expected that the per capita consumption rate will be up seasonally and should continue at about the year-earlier rate during the remainder of 1962.



Retail prices went up a little during the first quarter of 1962 and averaged 4 percent above a year earlier. They were expected to continue at that level during the second quarter.

Supplies of edible fishery products become more plentiful with the beginning of fishing operations in most segments of the industry during the late spring months. Commercial landings, which are already on a seasonal upturn, will reach a peak during June or July.

Total stocks of edible fishery products were at the low point of the year early this spring but will experience a gradual build-up with increased fishing activity during the summer. Holdings of frozen edible fishery products at the beginning of April were almost 20 percent lower than in April 1961. Packers' stocks of canned products were also lower than last year at that time and they will continue to decline seasonally until the 1962 canning season is well under way in early summer.

Imports of edible fishery products during the first two months of 1962 were 4 percent higher than those in the same period a year earlier, and are expected to continue high during the first half of 1962.

This analysis was prepared by the Bureau of Commercial Fisheries, U. S. Department of the Interior, and published in the Department of Agriculture's May 1962 issue of The National Food Situation (NFS-100).

Michigan

LAKE SUPERIOR WATERS CLOSED TO COMMERCIAL LAKE TROUT FISHING:

Final approval was given early in April 1962 by the Michigan Conservation Commission to the closing of commercial lake trout fishing in Michigan's Lake Superior waters. The restriction, another step toward bringing back the lake trout fishery of the upper Great Lakes, went to the State's Governor with the request that it be made effective June 1 of this year.

Wisconsin and Minnesota were scheduled to follow suit with similar restrictions. The states' joint effort to protect low lake trout populations from commercial fishing pressure was triggered by signs that chemical treatment of streams had made a significant cut in Lake Superior's sea lamprey.

This improvement in the lamprey picture, coupled with the ban on commercial fishing, will give impetus to natural reproduction in Lake Superior by an age class of lake trout due to reach maturity during 1962. Without the restriction, the commercial lake trout fishery of Superior would soon have been doomed to a total collapse, according to the U. S. Bureau of Commercial Fisheries.

A controlled lake trout harvest of about 40,000 pounds per year will still be made from Michigan's Lake Superior waters. Purpose of this is to continue studies on sea lamprey numbers, lake trout stocks and their natural reproduction, and other vital data.

This controlled harvest for assessment work will be done under arrangements made by the U. S. Fish and Wildlife Service whose services will be contracted by Michigan's Conservation Department.

Nautical Charts

ATLANTIC SUPPLEMENTAL CHARTS SHOW COASTLINE CHANGES CAUSED BY MARCH STORM:

A total of 27 supplemental charts showing changes in the storm-lashed Atlantic coastline during the week of March 6, 1962, have been published by the Coast and Geodetic Survey, U. S. Department of Commerce, it was announced on April 13, 1962. This completes the series of preliminary chart supplements intended to warn the mariner and chart user of shifted shorelines, shoaled channels, and other dangers.

The emergency supplements called "chartlets" by the nautical chart trade, were compiled directly from new aerial photography. The preliminary series are simple outlines showing alterations in the shoreline. Subsequent editions to be issued later in 1962 will include hydrography and aids to navigation. Ultimately the basic nautical charts of the Coast and Geodetic Survey will be revised to reflect the changes.

The chartlets are printed in black ink on thin white paper at the same scale as the basic chart. They may be placed over the basic chart to compare exact shoreline changes.

The 27 preliminary chartlets and their basic chart of reference are available free of charge to the chart-using public from authorized nautical chart agents of the Coast and Geodetic Survey.

New York

FISHERY LANDINGS, 1961:

Total landings of fish and shellfish in the Marine District of New York during 1961 amounted to 123.6 million pounds valued at $9.1 million. Compared with 1960, this was a drop of 14 percent in quantity, but a gain of 5 percent in value. The decline in quantity was the result of a decrease in landings of whiting, unclassified fish used for animal food, and scup or porgy. The catch of yellowtail flounders registered the major increase.

Striped bass landings in 1961 were the highest annual commercial catch for the last 16 years. The heavy run of that species was attributed to a very large year-class that were too small for the market during the previous year. Haul seines took the majority of the catch. The greatest landings of striped bass occurred in November.

Unloading a trawler at the Fulton Fish Market dock, New York City. Fish are packed in ice for shipment.

New York City is the State's major fishing port. Total landings of 11.7 million pounds at that port's Fulton Fish Market showed a drop of 1.3 million pounds as compared with 1960. Scup, the principal species, was down 1.3 million pounds, butterfish was down 400,000 pounds. Because of the short supply, there was an improvement in the price of both of those species.

Menhaden landings in New York State in 1961 were approximately the same as in 1960, with only a small increase in value.

Hard clams are the most important species in terms of value in the State. The 1961 production was up. The value per bushel averaged lower for the year.

Oyster production continued at a low level and dropped 22,000 pounds below 1960, while the value increased $163,000.

The bay scallop production during 1961 maintained a high level with a slight drop compared with the previous year's peak catch.

North Atlantic Fisheries Investigations

BIOLOGICAL DATA ON SEA SCALLOPS COLLECTED:

M/V "Charlotte" Cruise 5: In order to obtain live scallops for laboratory tank ex-

periments, to observe gonad development of sea scallops, and to obtain scallops for length-weight data, the vessel Charlotte chartered by the U.S. Bureau of Commercial Fisheries, operated 4 to 5 miles offshore of Barnstable, Mass., on April 7, 1962. The sex and condition of gonads of about 50 scallops were determined; 1 bushel of live scallops was culled from the total catch.

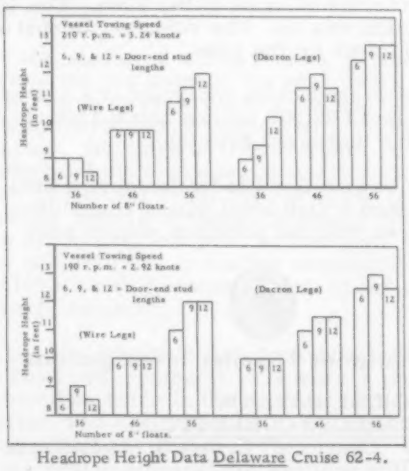
It was found that gonad development was proceeding normally to stage 6. One bushel of live scallops was brought back to the Bureau's Biological Laboratory at Woods Hole, Mass.

Note: See Commercial Fisheries Review, Jan. 1962 p. 25.

North Atlantic Fisheries Exploration and Gear Research

VERTICAL OPENING OF OTTER TRAWLS STUDIED:

M/V "Delaware" Cruise 62-4: To determine the relationship of the door-end-stud length and the vertical opening of a standard No. 41 otter trawl was the principal objective of the March 29-April 6, 1962, cruise by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Delaware. Measurements were also taken to show the effect of various numbers of standard aluminum ball floats attached to the headrope and of lightweight dacron top legs as compared with wire legs.


Vessel Towing Speed
210 r. p.m. = 3.24 knots
6, 9, & 12 = Door-end stud lengths
(Wire Legs)
(Dacron Legs)
Headrope Height (in feet)
Number of 8" floats.
Vessel Towing Speed
190 r. p.m. = 2.92 knots
6, 9, & 12 = Door-end stud lengths
(Wire Legs)
(Dacron Legs)
Headrope Height (in feet)
Number of 8" floats.

Headrope Height Data Delaware Cruise 62-4.

Vertical openings of the trawl were measured by means of an echo-sounder transducer mounted on the headrope of the trawl and a bottom contact indicator light. Both instruments were connected to indicators in the vessel's pilothouse by a "third wire" electric cable.

When the footrope was on bottom, as indicated by the contact switch and light, the distance to the bottom as sounded from the transducer mounted on the headrope indicated the vertical opening of the trawl.

Door-end-studs of 6-, 9-, and 12-foot lengths were tested on the same No. 41 trawl under identical conditions. The following modifications were made to the trawl while testing each of the three stud lengths: (1) the number of floats was increased from 36 to 56, by groups of 10; (2) dacron (pretensioned) rope was substituted for top wire legs; (3) the lower wings were cut free from the sweep sections of the footrope.

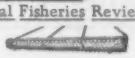
A total of 25 tows were conducted in an area 3 miles by 3 miles on Stellwagen Bank. Each tow consisted of four runs made with and against the tide at 210 r.p.m. (average speed 3.24 knots) and at 190 r.p.m. (average speed 2.92 knots).

The tests showed that the No. 41 otter trawl achieved an opening ranging from 8.5 feet to 13.5 feet. Highest headrope openings were attained with the lower wing cut free from the footrope sweeps and with the greatest number of floats (56) attached to the headrope.

Most significant findings of the cruise were: (1) the length of door-end studs did not appear to affect the opening of a No. 41 otter trawl; (2) increasing the number of floats increased the headrope height within the limitations of the netting; (3) dacron top legs helped to increase the headrope opening provided maximum opening had not already been reached through the use of floats; and (4) varying the towing speed between 3.24 and 2.92 knots did not affect headrope height.

Analyses of the data obtained indicated that the dimension of the No. 41 trawl netting sections restrict the headrope height to 13.5 feet. Higher opening of the trawl will require further modification of the trawl or use of a trawl of different design.

Note: See Commercial Fisheries Review, Nov. 1961 p. 25.



North Carolina

FISHERY LANDINGS, 1961:

Fish and shellfish landings in North Carolina during 1961 amounted to 276.6 million pounds, 20.8 million pounds (8 percent) above 1960. The production of food finfish was about 1 percent less than in the previous year. Shellfish landings declined 9 percent as compared with 1960.

Fig. 1 - A small vessel used for catching industrial fish, Beaufort, N. C.

The catch of menhaden and thread herring, used in the manufacture of fish meal, oil, and solubles, was 11 percent greater than in 1960. Lower landings of croaker, mullet, spot, and striped bass accounted for most of the decrease in the finfish production. Failure of the shrimp run was chiefly responsible for the drop in shellfish landings.

Fig. 2 - Menhaden net boats and dock unloading system at a pet food plant, Beaufort, N. C.

Otter-trawl fishing in outside waters was somewhat better than in 1960. The poor shrimp season may have been partly responsible since many of the large shrimp trawlers converted to fish trawls earlier in the fall than usual. Beach net fishing was not as good as in the previous year. This fishery appeared to be decreasing in importance.

Landings of sea bass, which amounted to only 41,000 pounds in 1959, totaled 635,000 pounds in 1961, up sharply compared with the 126,000 pounds landed in 1960. This fishery seemed to be spreading to other southern areas and some of the dealers were optimistic regarding its future as a substitute for fisheries which were declining in importance.

Menhaden landings increased 16 percent. More vessels operated and only the bad weather during the latter part of the season prevented much greater landings. The price of menhaden oil was depressed in 1961, due to a loss of some of the export market, but the price of meal was somewhat better than in 1960.

The catch of hard blue crabs was 6 percent greater than in 1960. However, the crab market was poor during most of the year--resulting in low returns. Activity in the soft blue crab fishery was light, although 11 percent more soft shell crabs were produced than in 1960. The 1961 oyster production was practically the same as for the previous year. Landings of bay scallops increased 54 percent above 1960, while the catch of calico scallops dropped 80 percent.

North Pacific Exploratory Fishery Program

SURVEY OF DEEP-WATER MARINE FAUNA OFF MOUTH OF COLUMBIA RIVER CONTINUED:

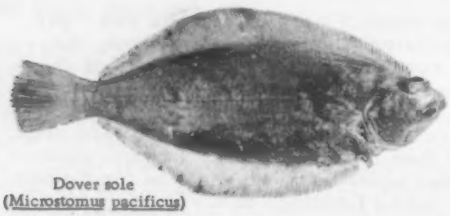
M/V "John N. Cobb" Cruise 53: The fourth in a series of cruises designed to monitor deep-water marine fauna at stations established along a track line southwest of the mouth of the Columbia River was completed on March 23, 1962, by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel John N. Cobb. This cruise was also designed to extend the track line into deeper water off the Columbia River and to establish stations west of Destruction Island suitable for future resurveying. As in previous cruises, commercial otter-trawl nets were used for the survey.

A total of 17 stations at depths from 50 to 550 fathoms were successfully trawled off

the Columbia River. Regions surveyed off Destruction Island at depths greater than 75 fathoms were characterized by rough bottom which caused considerable damage to nets. One successful haul was completed at 200 fathoms in this region.

Samples of fish and shellfish were collected for the Atomic Energy Commission and delivered to the Laboratory of Radiation Biology at the University of Washington College of Fisheries for radiological analyses. Additional samples of Dover sole and sablefish were collected for study by the Bureau's Technological Laboratory in Seattle.

The Bureau-Oregon Fish Commission cooperative study of Dover sole migrations was continued, with release of 244 tagged fish caught at depths from 100 to 425 fathoms.



Dover sole
(Microstomus pacificus)

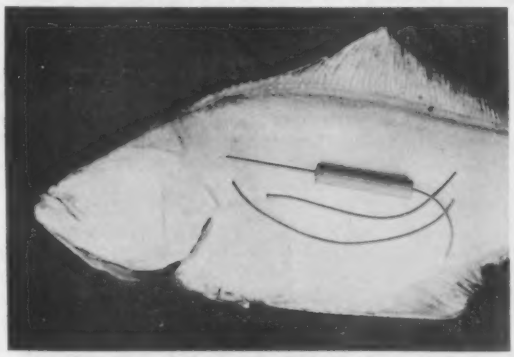
Commercial species of fish encountered off the Columbia River were the same as those taken in previous cruises, including sablefish (Anoplopoma fimbria), Dover sole (Microstomus pacificus), English sole (Parophrys vetulus), petrale sole (Eopsetta jordani), turbot (Atheresthes stomias), hake (Merluccius productus), and several species of rockfish. Some Dover sole and sablefish were found throughout the depth range fished. Largest sablefish catches ranging from 800 to 1,036 pounds per hour tow were caught at depths between 250 and 425 fathoms. The largest number of Dover sole were taken at the 200-fathom station. Good catches of 1,000 to 1,600 pounds per hour of ocean perch (Sebastodes) were made at stations from 125-175 fathoms. Very few hake were taken during the survey.

Sablefish
(Anoplopoma fimbria)

Catches of invertebrates increased in deeper water. Half of the total catch at the 550-fathom station consisted of invertebrates (starfishes and heart urchins). Male and female tanner crabs (Chionoecetes tanneri) were taken at the 350- and 375-fathom stations in contrast to previous cruises where they were found to occupy separate depth ranges. Egg-carrying females slightly outnumbered males.

The 200-fathom hauls off Destruction Island yielded 12,000 pounds of sablefish, mostly of subcommercial size.

The John N. Cobb left Seattle April 16, 1962, for 8 weeks of exploratory trawling for bottomfish in the Gulf of Alaska. The vessel was expected to return to Seattle June 8, 1962, from Cruise 54. The area of operation was to be Cape St. Elias to the general vicinity of Portlock Bank. The purposes of Cruise 54 were to determine the relative abundance and sizes of bottomfish and shellfish encountered in the area. Otoliths (ear bones) and scales were to be removed from commercial species of fish so that their ages can be determined. Halibut caught on the survey was to be tagged and



A fully-exposed dart tag lying beside one that has already been applied, and also a tag inserted into the hollow needle by which the tags are inserted in the halibut.

returned to the water to provide information on migration and growth. Sonic equipment was to be used to survey the bottom. A commercial otter-trawl net was to be towed over grounds indicated by the sonic gear as being trawlable. Catches made by the net were to be examined to assess the commercial fishing potential of the region.

Note: See Commercial Fisheries Review, Feb. 1962 p. 33, Apr. 1962 p. 20.

Oceanography

TROPICAL ATLANTIC COOPERATIVE INVESTIGATIONS SCHEDULED TO BEGIN IN 1963:

Cooperative investigations of the tropical Atlantic Ocean from South America to Africa are set to begin in January 1963, coordinated by the U. S. Fish and Wildlife Service's Bureau of Commercial Fisheries.

Proposed by the Bureau of Commercial Fisheries and accepted and sponsored by the Interagency Committee on Oceanography, this program will explore the equatorial Atlantic, one of the last remaining ocean areas with large stocks of underdeveloped food resources and what appears to be an enormous fishery potential. These fishery resources, so valuable as protein food, are sorely needed by peoples of West Africa and other parts of the world who lack, to a crippling degree, protein in their diet.

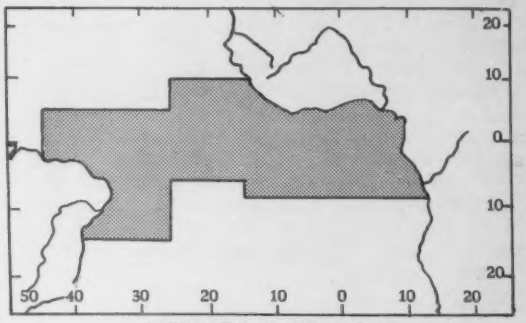
Although some research and exploration have been conducted by other nations in the tropical Atlantic, the Bureau's program will be a major fishery and oceanographic research project. It is now under consideration for submission to the Inter-governmental Oceanography Committee as a United States-sponsored international program.

A review of what already is known about the area shows a lack of general knowledge about changes in the aquatic plant and animal life of the area as affected by currents, temperature, and other physical environmental factors. Therefore, the first year's work will be oceanographic research of a general descriptive nature, studying the complex surface currents, variances of water temperature, salinity, weather observations, nutrient content, the role of the Equatorial Undercurrent, and related topics. Pelagic fishery surveys will be carried out during 1964 and 1965, using results from the 1963 studies for experimental design of later work.

Cooperating in these investigations will be several universities, the U. S. Weather Bureau, the U. S. Coast and Geodetic Survey, and the U. S. Department of the Navy. Research vessels from Argentina and Brazil may participate, and expressions of interest have been received from Britain and France.

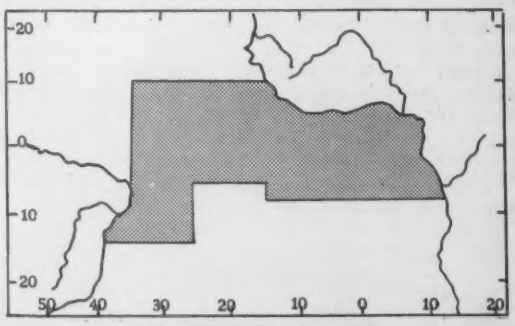
Anticipating the need for additional staff and facilities to carry on the greatly expanded work of the Bureau of Commercial Fisheries' Washington, D. C., Biological Laboratory in this new program, the Laboratory moved May 1 to larger quarters in Building 74, Naval Weapons Plant. The Laboratory was previously located at 734 Jackson Place in Washington.

The program has been designated as the Tropical Atlantic Investigations and the first two synoptic or general surveys as EQUALANT I and EQUALANT II.



EQUALANT I, Jan.-Mar. 1963.

EQUALANT I will take place January-March 1963. As of March 1962, the ships committed to the survey include the Chain and Crawford of the Woods Hole Oceanographic Institution, Explorer of the U. S. Coast and Geodetic Survey, and Geronimo of the U. S. Bureau of Commercial Fisheries. The Oregon of the Bureau of Commercial Fisheries and the Ombango of the Pointe-Noire Laboratory may be used. An Argentine vessel will participate in the survey also.



EQUALANT II, July-Sept. 1963.

For EQUALANT II, covering July-September 1963, the only vessel definitely committed is the Geronimo of the Bureau of

Commercial Fisheries. However, Argentina and Brazil will cooperate in this phase as will the Pointe-Noire Laboratory, the Agricultural and Mechanical College of Texas, and the University of Rhode Island.

Pollution

FISH KILLED BY WATER POLLUTION IN 1961:

A total of 15 million fish were reported killed by water pollution in the United States in 1961, the U. S. Public Health Service's Division of Water Supply and Pollution Control announced on April 23, 1962. The new report shows that agricultural poisons led all known sources of fish kills during 1961, followed by industrial wastes. A total of 444 individual kills are represented in the summaries, many of them attributed to more than one source. The totals by categories follow:

Agricultural poisons: 75 reports accounting for 5.6 million fish killed; industrial wastes: 150 reports accounting for a total of 2.9 million fish killed; mining operations: 19 reports accounting for 1.1 million fish killed; other sources: 60 reports accounting for a total of 184,000 fish killed; domestic sewage: 52 reports accounting for 162,000 fish killed; and 79 unknown source reports accounting for 5.8 million fish killed.

The previous year's report, released on June 30, 1961, showed a total of 286 reports received from 36 States and a total of 6.3 million fish killed. Industrial wastes led as source of kills followed by agricultural poisons in that report.

Only five states did not report any fish kills, either because they did not occur or were not of significant amounts.

Total river mileage affected in the 1962 reports when given was 1,700 miles; in addition, 50 miles of lake and bay shore lines, and 6,000 acres of lakes, reservoirs, and bays.

Shrimp

UNITED STATES SUPPLY AND DISPOSITION, 1959-61:

With the sharp drop in landings in 1961 in the Gulf and South Atlantic States, the available supply in 1961 was substantially below 1960. If it had not been for the substantial increase in imports of shrimp, the 1961 supply would have been even less.

Bucket unloader used for unloading shrimp from trawlers, Tampa, Fla.

U. S. Supply and Disposition of Shrimp, 1959-61

Item	1961 1/	1960 2/	1959
	(1,000 Lbs.)		
Supply--Heads-on Weight:			
Domestic catch	174,200	249,452	240,182
Imports 3/	227,189	197,515	186,202
Total supply	401,389	446,967	426,384
Disposition--Heads-on Weight (Approximate):			
Frozen:			
Headless 4/	5/	287,400	255,646
Meat, raw 4/	5/	76,370	51,245
Meat, cooked 4/	5/	10,390	10,465
Breaded	5/	86,460	83,994
Specialties	5/	580	364
Total frozen 6/	328,989	341,287	322,356
Canned	44,400	56,670	57,730
Dried	4,000	6,330	3,298
Fresh	24,000	42,680	43,000

1/Preliminary.
2/Revised.
3/Reported by the United States Bureau of the Census as "shrimp and prawn," which includes fresh, frozen, cooked, dried, canned, etc., as follows: 1959--106,555,000; 1960--113,418,000; and 1961--126,268,000 pounds. The equivalent heads-on weight was computed.
4/May include small quantities of fresh products.
5/Not available.
6/These totals do not add and are less than actual totals because products frozen more than once have been eliminated.
Note: Shrimp data were compiled from figures assembled by the U. S. Tariff Commission and the Bureau of Commercial Fisheries Market News Service offices. To convert the weight of heads-on shrimp to heads-off, divide by 1.68.

* * * * *

UNITED STATES SHRIMP SUPPLY INDICATORS, APRIL 1962:

Item and Period	1962	1961	1960	1959	1958
	(1,000 Lbs., Heads-Off)				
Total Landings, So. Atl. and Gulf States:					
June	-	8,220	12,427	14,547	10,241
May	-	5,279	6,335	6,885	6,523
April	2,700	3,169	4,729	3,595	5,300
Jan.-Mar.	10,900	14,352	13,284	10,487	14,035
Jan.-Dec.	-	91,280	141,035	130,659	116,552
Quantity canned, Gulf States 1/:					
June	-	3,744	7,537	7,641	5,107
May	-	1,316	1,591	2,680	1,462
April	3	10	72	81	306
Jan.-Mar.	855	335	640	536	234
Jan.-Dec.	-	15,760	28,594	24,679	26,404
Frozen inventories (as of end of each mo.) 2/:					
June 30	-	19,416	15,338	19,283	10,664
May 31	-	24,696	17,540	21,137	11,013
April 30	-	27,492	20,502	23,331	12,211
March 31	16,607	31,345	23,232	24,893	14,501
January 31	-	31,842	34,332	30,858	17,963
Imports 3/:					
June	-	8,065	8,932	8,300	6,018
May	-	8,278	9,902	8,264	5,666
April	4/	9,208	7,733	9,051	5,446
March	9,658	10,347	8,545	8,492	4,986
Jan.-Mar.	33,164	31,617	24,798	24,211	15,148
Jan.-Dec.	-	126,268	113,418	106,555	85,393

1/Pounds of headless shrimp determined by multiplying the number of standard cases by 33.
2/Raw headless only; excludes breaded, peeled and deveined, etc.
3/Includes fresh, frozen, canned, dried, and other shrimp products as reported by the Bureau of the Census.
4/Not available.
Note: Data for 1962 and 1961 are preliminary. March 1962 data estimated from information published daily by the New Orleans Fishery Market News Service. To convert shrimp to heads-on weight multiply by 1.68.

South Atlantic Exploratory Fishery Program

SHRIMP TAGGED IN GULF OF MEXICO AREA:

M/V "Silver Bay" Cruise 38 (March 14-April 13, 1962): To stain and tag shrimp for mortality and migration studies was the primary objective of the 31-day cruise of the exploratory fishing vessel Silver Bay of the U. S. Bureau of Commercial Fisheries. The tagging was done for the Bureau's Biological Laboratory at Galveston, Tex. The vessel returned to Brunswick, Ga., on April 13, 1962.

Approximately 2,500 pink shrimp were stained and released off Sanibel Island, Fla. A total of 2,431 stained and 1,632 tagged brown shrimp were released between Galveston and Aransas Pass, Texas. Post larval penaeid shrimp and ripe brown shrimp were collected off the Louisiana coast.

South Carolina

FISHERY LANDINGS, 1961:

South Carolina landings of fish and shellfish during 1961 amounted to 19.2 million pounds--5 million pounds less than in 1960. The production of finfish was 1.6 million pounds greater than in 1960, while landings of shellfish dropped 6.6 million pounds. Most of the 1961 over-all decline was due to a disastrous drop in landings of shrimp, one of the mainstays of the economy of the commercial fisheries of that State.

Unloading shrimp from a trawler at Pt. Royal, S. C.

Weather conditions were generally favorable for all fishing during the year, except in September, when there were several days of high winds and rough seas. In July, the rainfall was in excess of normal recordings for that period.

The catch of food finfish increased 1.5 million pounds (30 percent) above 1960. This increase was due primarily to the poor shrimp season, as the shrimp vessels turned to fishing for finfish to take the place of income usually derived from shrimp fishing. Compared with the previous year, the 1961 landings of flounder increased 74 percent; king whiting, 65 percent; spot, 27 percent; and sea bass, from 29,000 pounds to 324,000 pounds. The tremendous gain in sea bass was attributed to more extensive use of fish pots during the latter part of the year.

Landings of shrimp dropped from 8 million pounds (heads-on) in 1960 to 3.9 million pounds in 1961. There was an increase of approximately 7 cents per pound in the ex-vessel price of shrimp--compensating in only a very small measure for the greatly reduced landings.

The 1961 production of hard clams increased 12 percent compared with 1960. The price held good throughout the year, and there was a ready market for all that could be taken. Landings of hard crabs dropped from 7.1 million pounds in 1960, to 4.7 million pounds, or 34 percent. The oyster fishery had a good year, but production was about 3 percent below that of the previous year. South Carolina oysters were in demand and brought good prices. With the advent of the new wage and hour law, most of the shucking plants laid off large numbers of shuckers.

Trout

SHORTAGE OF AMERICAN-PRODUCED RAINBOW TROUT PREDICTED:

The increase in demand for American-produced rainbow trout has created shortages in many portion sizes, states the U. S. Trout Farmers' Association. The Association is the official legal organization representing a large number of American trout producers located throughout the nation.

One leading United States trout producer reported an increase of over 70 percent in sales volume during March 1962. The Association predicts additional increases in demand due to the fact that more and more eating establishments and food outlets are vigorously promoting quality fishery products and other low fat, polyunsaturated main dishes. Modern processing, high quality feeds, and rapid shipping--coupled with close proximity to the ultimate consumer--are a few of the factors that have made American-produced rainbow trout popular.

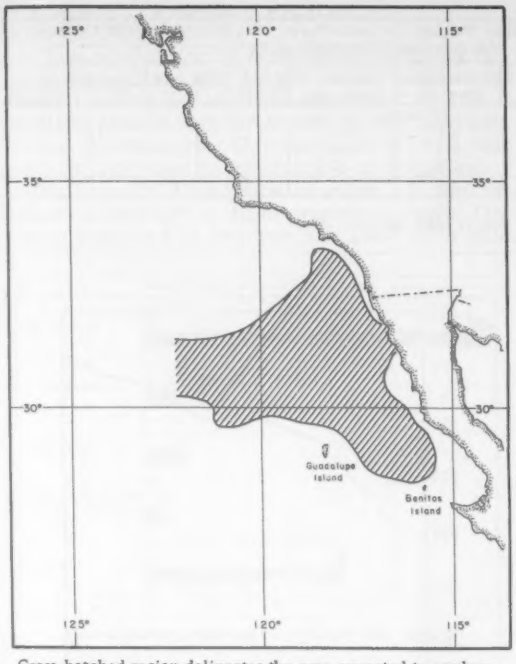
Rainbow trout's high popularity stems from the variety of ways it can be prepared and because it lends itself to a variety of enticing menu descriptions. Another reason for rainbow trout's growing popularity is that the dining public has discovered that trout are the original "all American fish." Being native to the United States, these colorful and fighting game fish helped to feed our country's forefathers as they moved West. A rainbow's coloring actually depicts our Nation's favorite and historic colors as it is characteristically blue on top with silvery white underneath and red stripes or side markings. (April 10, 1962, news release from the U. S. Trout Farmers' Association.)

Tuna

ALBACORE CATCH PREDICTION BY U. S. WEST COAST FISHERMEN SOUTH OF INTERNATIONAL BORDER:

This year United States west coast commercial fishermen will catch 18.0 million pounds of albacore tuna from waters south of the International Border between Mexico and the United States, and 5.7 million pounds of bluefin tuna in waters off California. This prediction was made by the San Diego Biological Laboratory of the U. S. Bureau of Commercial Fisheries. It was based on shore temperatures averaged for January through April 1962, and water temperatures and salinities taken in April by the California Cooperative Oceanic Fisheries investigations off the Baja California and southern California coasts.

The albacore fishery is expected to range as far south as Guadalupe Island in June and July. Bureau scientists have not yet found a



Cross-hatched region delineates the area expected to produce about two-thirds of albacore catch in June and July 1962.

means to predict total west coast albacore and bluefin landings.

Since 1945, the albacore catch south of the border has ranged from zero to 26.7 million pounds. The bluefin catch off California for the same period has fluctuated from below a million pounds to 15.6 million pounds.

During the past year the ocean to the west of Baja California and southern California has continued to cool from abnormally high water temperatures in the years 1958 and 1959. This year, temperatures are up to 2° F. cooler than the long-term mean, whereas in 1958 and 1959, temperatures were as much as 6° F. warmer than the long-term average. The years 1958 and 1959 were noted for the complete failure of the southern albacore fishery.

Historical catch records show an inverse relationship between the albacore catch from south of the International Border and the bluefin catch from California waters. We believe this relationship is due to differences in response by the two species to the oceanic environment. In "cold" years albacore move farther south than usual, resulting in high catches south of the border. In "warm" years bluefin move to the north, giving high catches from California waters. Since this is a "cold" year the center of the bluefin population is expected to remain to the south; we estimate that a below-average bluefin will be taken from California waters.

The estimates of catch may be subject to considerable error because as yet it has not been possible to correct for substantial changes in fishing effort and to anticipate changes that may occur in the ocean environment after the forecast has been made. During the preceding three weeks prior to May 15, the ocean appeared to be warming at a rate faster than normal. This may cause the albacore forecast to be somewhat high and the bluefin forecast somewhat low.

In May 1961 the Bureau Laboratory at San Diego issued its first forecast for the albacore fishery in the eastern Pacific Ocean. The staff predicted that 10.0 million pounds of albacore would be taken from waters south of the International Border between Mexico and the United States and that the fishery would begin farther south than it had in the preceding three years. A preliminary report from the California Department of Fish and Game stated that 8.4 million pounds of albacore were taken from that region in 1961.

United States Fisheries

TRENDS IN 1961:

Per capita consumption of fish in the United States increased to 10.9 pounds in 1961, a half pound more than in the previous year. This increase was divided equally between "fresh and frozen" and canned items.

The supply of domestically-produced fresh and frozen products declined substantially, even though the annual harvest was the Nation's second largest--5.2 billion pounds. Imports were up sharply due to increased receipts of groundfish fillets and blocks, and shrimp. Both edible and nonedible imports established records.

The total amount paid to United States fishermen and vessel owners amounted to $358 million--nearly $4 million more than

Apparent Civilian Per Capita Consumption of Fishery Products (Edible Weight), Calendar Years, 1935-39 and 1947-49 Averages, 1959-61 and Preliminary for 1962, with Percentage Comparisons

Commodity	Preliminary 1/ 1962	1961	1960 1/	1959	Average 1947-49	Average 1935-39	1962 as a Percentage of 1961	1947-49	1935-39
	(Pounds)								
Fresh and Frozen	3/	6.0	5.8	5.9	6.0	5.4	-	-	-
Canned 2/	3/	4.3	4.0	4.2	3.9	4.9	-	-	-
Cured	3/	.6	.6	.6	.6	.7	-	-	-
Total	10.9	10.9	10.4	10.7	10.5	11.0	100	104	99

1/Excludes Alaska and Hawaii.
2/Excludes canned food products containing small quantities of fish, such as clam chowder, etc.
3/Not available.

in 1960, but $15 million less than the record $373 million paid in 1958. The average price per pound was 6.94 cents, a low figure due to the record catch (2.3 billion pounds) of low-priced menhaden.

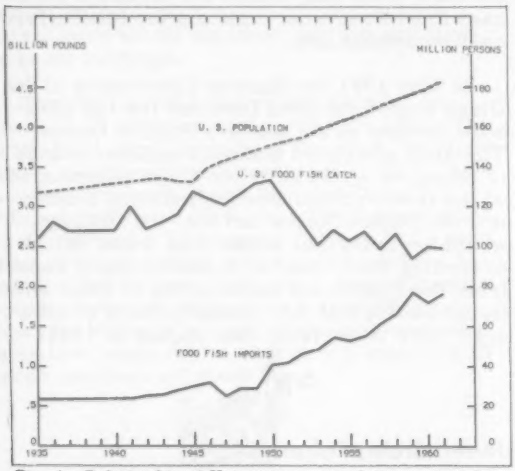
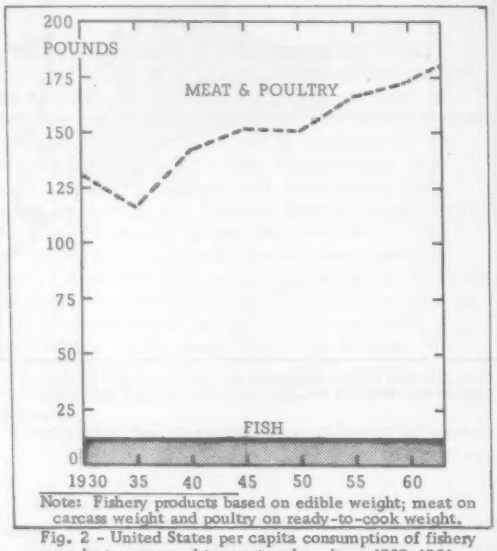


Fig. 1 - Relationship of United States population to food fish catch and imports, 1935-61.

San Pedro, Calif., was the leading United States fishing port in 1961 with respect to both quantity and value of fishery landings. At that port landings amounted to 416 million pounds, with an ex-vessel value of $36 million. Pascagoula, Miss., was in second place with 354 million pounds; followed by Lewes, Del., 303 million pounds; Reedville, Va., 290 million pounds; Cameron, La., 252 million pounds; and Empire, La., 246 million pounds. All but San Pedro were entirely or principally menhaden ports. New Bedford, Mass., occupied second place in value of landings with $15 million; followed by Boston, Mass., $10 million; San Diego, Calif., $8 million; and Gloucester, Mass., $6 million.

The 1960 world catch amounted to a record 83.2 billion pounds. Five countries accounted for well over 50 percent of the total catch--Japan (16.4 percent), China (Mainland) (13.3 percent), Peru (9.4 percent), U.S.S.R. (8.1 percent), and the United States (7.5 percent).



Note: Fishery products based on edible weight; meat on carcass weight and poultry on ready-to-cook weight.

Fig. 2 - United States per capita consumption of fishery products compared to meat and poultry, 1930-1961.

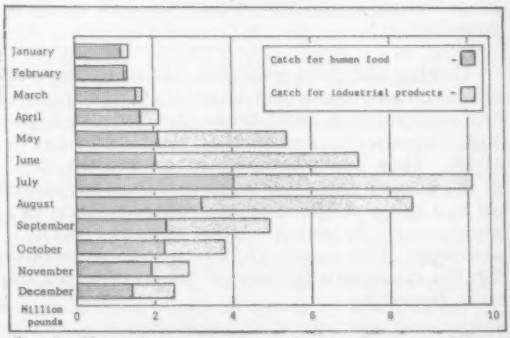


Fig. 3 - United States monthly catch and utilization of fish and shellfish, 1961.

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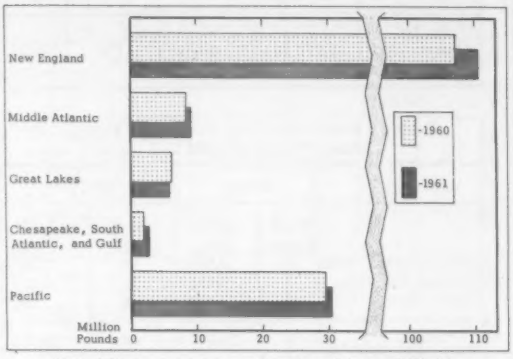
PACKAGED FISHERY PRODUCTS PRODUCTION, 1961:

The production of fresh and frozen packaged fish fillets and steaks in the continental United States during 1961 amounted to 158 million pounds valued at nearly $52 million to the processors. Compared with 1960, this was an increase in production of 5 million pounds and of $3 million in value. It was estimated that 449 million pounds of round fish were required to produce the 1960 production.



United States production of packaged fish, 1960-61.

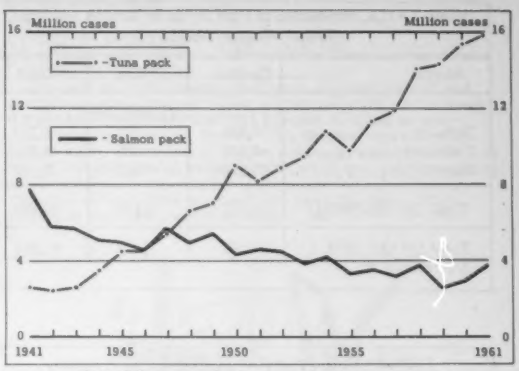
Haddock fillets (38 million pounds) and Atlantic ocean perch fillets and steaks (37 million pounds) were the leading items produced in 1961 and accounted for 48 percent of the total volume and 42 percent of the total value. Other important items produced during 1961 were flounder, cod, halibut, and pollock steaks and fillets.

* * * * *

CANNED FISHERY PRODUCTS, 1961:

The pack of canned fishery products in the United States, American Samoa, and Puerto Rico during 1961 amounted to 33 million standard cases (1 billion pounds) valued at $424 million to the packers. Compared with 1960, this was a 4 percent decrease in production, but an increase of 9 percent in value.

The 1961 pack for human consumption was 48 million pounds and $41 million higher than in 1960. The gain in both quantity and value was due largely to record packs of tuna and crab meat, and to increased packs of canned salmon, mackerel, and oysters. The value of two items--canned salmon and tuna--accounted for 72 percent of the total value of canned fishery products to the packers.



United States pack of tuna and salmon, 1941-61.

The packs of Maine and Pacific sardines, shrimp, and animal food were less than in the previous year.

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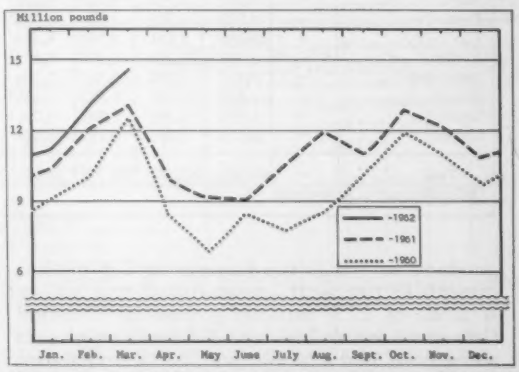
FISH STICKS AND PORTIONS PRODUCTION, JANUARY-MARCH 1962:

The United States production of fish sticks during the first quarter of 1962 amounted to 20.7 million pounds, while the production of fish portions totaled 18.4 million pounds. This was a gain of 253,000 pounds (1 percent) in fish stick production and 3.4 million pounds (22 percent) in the production of fish portions as compared with the first quarter of 1961.



U. S. production of fish sticks and portions combined, 1960-1962.

Cooked sticks (19.5 million pounds) accounted for 94 percent of the total fish stick

Table 1 - U.S. Production of Fish Sticks by Months and Type, January-March 1962 1/

Month	Cooked	Raw	Total
	(1,000 Lbs.)		
January	5,734	370	6,104
February	6,504	355	6,859
March	7,293	413	7,706
Total 1st Qtr. 1962 1/	19,531	1,138	20,669
Total 1st Qtr. 1961	19,133	1,283	20,416

1/Preliminary.

Table 2 - U. S. Production of Fish Sticks by Areas, January-March 1962 and 1961

Area	1962 1/		1961 2/	
	No. of Firms	1,000 Lbs.	No. of Firms	1,000 Lbs.
Atlantic Coast States	22	16,398	24	16,589
Inland & Gulf States	4	2,147	7	1,980
Pacific Coast States	8	2,124	10	1,847
Total	34	20,669	41	20,416

1/Preliminary. 2/Revised.

Table 3 - U.S. Production of Fish Sticks by Months, 1958-1962

Month	1962 1/	1961 2/	1960	1959	1958
	(1,000 Lbs.)				
January	6,104	6,091	5,511	6,277	5,471
February	6,859	7,092	6,542	6,352	5,925
March	7,706	7,233	7,844	5,604	5,526
April	-	5,606	4,871	4,717	4,855
May	-	5,136	3,707	4,407	4,229
June	-	4,938	4,369	4,583	4,702
July	-	3,585	3,891	3,790	4,574
August	-	6,937	5,013	3,879	4,358
September	-	5,216	5,424	5,353	5,328
October	-	6,143	6,560	5,842	5,485
November	-	6,298	6,281	4,831	5,091
December	-	5,628	5,329	4,743	5,467
Total	-	69,903	65,142	60,378	61,011

1/Preliminary. 2/Revised.

production, while the remaining 1.2 million pounds (6 percent) consisted of raw sticks. A total of 17.8 million pounds of breaded fish portions (of which 14.9 million pounds were raw) and 574,000 pounds of unbreaded portions was processed during the first quarter of 1962.

Table 4 - U. S. Production of Fish Portions by Months and Type, January-March 1962 1/

Month	Breaded			Unbreaded	Grand Total
	Cooked	Raw	Total		
	(1,000 Lbs.)				
January	945	4,028	4,973	129	5,102
February	753	5,359	6,112	262	6,374
March	1/1,234	5,514	6,748	183	6,931
Total 1st Quarter 1962	2,932	14,901	17,833	574	18,407
Total 1st Quarter 1961	2,772	11,751	14,523	513	15,036

1/Preliminary.

Table 5 - Production of Fish Portions by Areas, January-March 1962 and 1961

Area	1962 1/		1961 2/	
	No. of Firms	1,000 Lbs.	No. of Firms	1,000 Lbs.
Atlantic Coast States	24	10,912	25	9,382
Inland & Gulf States	7	7,046	12	5,257
Pacific Coast States	8	499	6	397
Total	39	18,407	43	15,036

1/Preliminary. 2/Revised.

Table 6 - U. S. Production of Fish Portions by Months, 1958-1962

Month	1962 1/	1961 2/	1960	1959	1958
	(1,000 Lbs.)				
January	5,102	4,303	3,632	2,692	1,973
February	6,374	4,902	3,502	3,025	1,254
March	6,931	5,831	4,706	3,225	1,471
April	-	4,507	3,492	2,634	2,268
May	-	3,902	3,253	2,684	1,478
June	-	4,063	3,995	3,247	1,504
July	-	3,986	4,088	2,227	2,161
August	-	4,987	3,558	2,796	1,516
September	-	5,769	4,631	3,558	1,566
October	-	6,783	5,275	4,314	2,560
November	-	5,813	4,790	3,483	1,979
December	-	5,215	4,459	3,262	2,060
Total	-	60,061	49,381	37,147	21,790

1/Preliminary. 2/Revised.

The Atlantic Coast led all areas in the production of both fish sticks and portions with 16.4 and 10.9 million pounds, respectively. The Inland, Gulf, and Pacific Coast States produced the remaining 4.3 million pounds of fish sticks and 7.5 million pounds of fish portions.

Note: See Commercial Fisheries Review, March 1962 p. 24.

U. S. Fishing Vessels

DOCUMENTATIONS ISSUED AND CANCELLED, MARCH 1962:

During March 1962, a total of 19 vessels of 5 net tons and over were issued first documents as fishing craft as compared with 44 in March 1961. There were 44 documents cancelled for fishing vessels in March--the same as in March 1961.

Table 1 - U. S. Fishing Vessels 1/ --Documentations Issued and Cancelled, by Areas, March 1962 with Comparisons

Area (Home Port)	Mar. 1962	Mar. 1961	Jan.-Mar. 1962	Jan.-Mar. 1961	Total 1961
	(Number)				
Issued first documents 2/:					
New England	1	2	3	9	33
Middle Atlantic	1	1	1	1	12
Chesapeake	1	8	7	12	75
South Atlantic	3	8	7	11	44
Gulf	10	9	25	27	103
Pacific	3	14	15	23	149
Great Lakes	-	2	-	3	12
Puerto Rico	-	-	-	2	2
Total	19	44	58	88	430
Removed from documentation 3/:					
New England	1	2	6	5	20
Middle Atlantic	6	8	15	10	32
Chesapeake	-	6	3	14	28
South Atlantic	7	3	14	8	29
Gulf	10	13	29	30	104
Pacific	15	9	42	26	111
Great Lakes	2	2	8	4	17
Hawaii	2	-	3	-	-
Total	43	43	120	97	341

1/For explanation of footnotes, see table 2.

Table 2 - U. S. Fishing Vessels 1/ --Documents Issued and Cancelled, by Tonnage Groups, March 1962

Gross Tonnage	Issued 2/	Cancelled 3/
	(Number)	
5-9	2	9
10-19	7	11
20-29	2	4
30-39	2	3
40-49	2	2
50-59	-	4
60-69	1	-
70-79	3	2
80-89	-	1
100-109	-	1
110-119	-	1
130-139	-	2
140-149	-	1
260-269	-	1
310-319	-	1
Total	19	43

1/Includes both commercial and sport fishing craft. A vessel is defined as a craft of 5 net tons and over.
2/Includes redocumented vessels previously removed from records. Vessels issued first documents as fishing craft were built: 9 in 1962, 2 in 1961, 1 in 1960, and 7 prior to 1951. Assigned to areas on the basis of their home ports.
3/Includes vessels reported lost, abandoned, forfeited, sold alien, etc.
Source: Monthly Supplement to Merchant Vessels of the United States, Bureau of Customs, U. S. Treasury Department.

U. S. Foreign Trade

EDIBLE FISHERY PRODUCTS, FEBRUARY 1962:

Imports of fresh, frozen, and processed edible fish and shellfish into the United States in February 1962 were down 5.5 percent in quantity and 10.6 percent in value as compared with the previous month. The decline was due primarily to smaller imports of frozen fillets (groundfish and other types), canned tuna in brine, canned sardines, canned salmon, fresh and frozen sea scallops, spiny lobster, and shrimp. The decline was offset partially by more imports of fish blocks, frozen tuna, and frog legs.

Compared with the same month in 1961, imports in February 1962 were up 1.5 percent in quantity and 7.5 percent in value. The general increase came about because of more imports of fillets of groundfish (mostly ocean perch and fish blocks), frozen tuna other than albacore, tuna loins and discs, canned sardines in oil, live lobsters from Canada, and shrimp. The increases were offset somewhat by declines in the imports of fillets other than groundfish, frozen albacore, frozen salmon from Canada, canned tuna, canned sardines not in oil, canned crab meat, canned lobster meat from Canada, and canned oysters.

In the first two months of 1962 the imports of fresh, frozen, and processed edible fish and shellfish were up 3.0 percent in quantity and 14.7 percent in value as compared with the same period the previous year. The increase in value was due to the higher prices for nearly all imported fishery products. Imports in January-February 1961 were greater for frozen fillets (especially fish blocks and ocean perch), frozen tuna, tuna loins and discs, canned tuna, canned sardines in oil, frozen shrimp, fresh and frozen scallops from Canada, and lobster and spiny lobster.

U.S. Imports and Exports of Edible Fishery Products, February 1962 with Comparisons

Item	Quantity Feb. 1962	Quantity Feb. 1961	Quantity Jan.-Feb. 1962	Quantity Jan.-Feb. 1961	Value Feb. 1962	Value Feb. 1961	Value Jan.-Feb. 1962	Value Jan.-Feb. 1961
	(Millions of Lbs.)				(Millions of $)			
Imports:								
Fish & Shellfish: Fresh, frozen, & processed 1/	84.0	82.8	173.0	167.9	28.8	26.8	61.0	53.2
Exports:								
Fish & Shellfish: Processed only 1/ (excluding fresh & frozen)	2.9	4.4	6.4	6.9	1.3	1.9	2.7	3.0

1/Includes pastes, sauces, clam chowder and juice, and other specialties.

United States exports of processed fish and shellfish in February 1962 were down 33.6 percent in quantity and 31.6 percent in value as compared with February 1961. The drop was due to smaller exports this February of canned mackerel, salmon, and sardines not in oil, frozen shrimp, canned shrimp, and shucked oysters.

Compared with the previous month, the exports in February 1962 were down 16.8 percent in quantity and 7.1 per-

cent in value principally because of smaller exports of canned mackerel.

Processed fish and shellfish exports for the first two months of 1962 were down 7.2 percent in quantity and 10.0 percent in value as compared with the same period of 1961. The following products were exported in substantially lesser quantities in 1962: canned salmon, canned sardines not in oil, canned shrimp, and shucked oysters.

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IMPORTS OF CANNED TUNA IN BRINE UNDER QUOTA:

United States imports of tuna canned in brine during January 1-March 31, 1962, amounted to 14,180,044 pounds (about 675,200 std. cases), according to data compiled by the Bureau of Customs. This was 19.9 percent more than the 11,822,619 pounds (about 563,000 std. cases) imported during January 1-April 1, 1961.

United States imports of tuna canned in brine during January 1-April 28, 1962, amounted to 17,049,225 pounds (about 811,900 std. cases). This was 13.0 percent more than the 15,083,873 pounds (about 718,300 std. cases) imported during January 1-April 29, 1961.

The quantity of tuna canned in brine which may be imported into the United States during the calendar year 1962 at the 12½-percent rate of duty is limited to 59,059,014 pounds (about 2,812,000 std. cases of 48 7-oz. cans). Any imports in excess of the quota are dutiable at 25 percent ad valorem.

Virginia

CHESAPEAKE BAY FLOUNDER MIGRATION STUDIES:

Biologists from Massachusetts, New York, New Jersey, and Virginia, with the New Jersey Department of Conservation acting as host, met at the New Jersey State laboratory at Island Beach on April 13 to consolidate their findings about the migrations of flounder in the Middle Atlantic area. An Associate Marine Scientist of the Ichthyology Department of the Virginia Institute of Marine Science, Gloucester Point, discussed the movement of flounders from the time they hatch in the ocean until they are caught by fishermen.

"We have collected eggs and larvae of flounders over the continental shelf from November to March for three years," the scientist reported, "and have followed the migration of young fishes into Chesapeake Bay, up the rivers, and their return to the ocean." Small flounders no more than an inch in length are found in the shallow waters of the York River during late spring.

A graduate student of the Virginia Institute and associated with the Ichthyology Department has been determining the age of flounders in the commercial catch since October 1961. Age is determined by carefully examining the ear stones called otoliths. Each year's growth adds a concentric ring similar to the growth ring on a tree.

The head of the Department of Ichthyology of the Virginia Institute has been processing catch data for the past six years in order to learn trends of the fishery. Another member of the same department has been collecting sport fishing records on the flounder catch.

A crew from the Ichthyology Department has been making monthly surveys for the past several years to gain information about the presence, abundance, and distribution of flounder and other fish in the Chesapeake Bay, and has traced their migration into Chesapeake Bay.

The symposium was called to gather together all regional workers who are interested in the problem and to summarize information which has been gathered. In this way, answers to some questions can be found which an individual state could not obtain because their facilities do not reach beyond state boundaries.

It is hoped that serious gaps in the present knowledge of the flounder will soon be filled in, and that the meeting will be mutually beneficial to representatives of all of the states.

* * * * *

OYSTERS AND RADIOACTIVE WASTE:

At a meeting of the Atlantic Estuarine Research Society held at Morehead City, N. C., the weekend of April 14-15, an Associate Marine Scientist at the Virginia Institute of Marine Science, Gloucester Point, pointed out that one acre of oysters may deposit a ton, dry weight, of silt, clay, and suspended matter in a week's time. This is equivalent to five tons wet weight.

"Should fission particles be present in the waters, they would be attached to clay,

silt, and other suspended material," the scientist stated. "Oysters, barnacles, clams, tunicates, and copepods all ingest this material and eventually deposit it on the bottom." The scientist and his research assistant at the Institute gave a joint paper entitled, "Biodeposition by Filter Feeding Marine Organisms as a Process in Concentrating Radioactive Wastes into Bottom Deposits." The paper states that there are many sources of radiation contamination such as, disposable low-level wastes from experimental uses (hospitals, therapeutic uses, etc.), nuclear power plants, maritime reactors, fallout from nuclear testing, and the possibility of contamination from nuclear accidents.

"What would be the ultimate fate of radioactive materials once introduced into marine waters?" the scientist asked. The laboratory work he is doing is under the direction of the head of the department of basic ecology-pollution at the Institute. They are concerned with the absorption (sticking) of radionuclides to suspended materials in the water, especially clay. Work completed thus far indicates that the higher the salinity the lower the absorption of fission products. Apparently radioactive material is not stripped off of clay particles as it passes through the digestive tract of marine animals. One of the next problems to be attacked is to learn how permanent the sediments of the deposits from these marine animals are.

A graduate student at the Virginia Institute gave a paper on the age and size of Urosalphinx cinerea, the screw borer or oyster drill, at the onset of maturity in the lower York River. He reported that these smooth oyster drills are sexually mature when only half an inch long. Few drills grow to be more than one inch long in the York River. On the Eastern Shore of Chesapeake Bay they frequently reach a length of two inches and are highly destructive to oysters in the high salinity waters throughout Virginia.

The membership of the Atlantic Estuarine Research Society consists of 166 scientists who conduct research in marine waters along the Atlantic Coast.

* * * * *

FISHERY LANDINGS, 1961:

Landings of fish and shellfish at Virginia ports during 1961 amounted to 400.8 million pounds valued at $20.5 million. Compared with 1960, this was a gain of 9 percent in quantity, but a drop of 2 percent in value. The catch of menhaden accounted for 72 percent of the 1961 total catch, while oysters accounted for 52 percent of the total value.

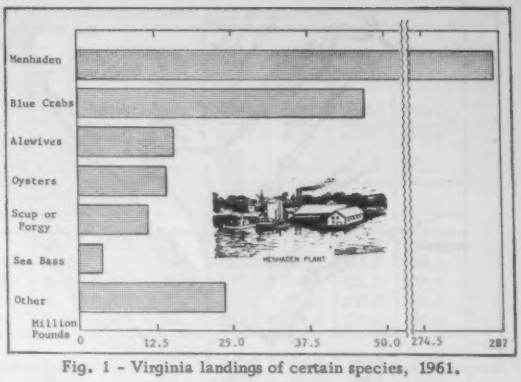


Fig. 1 - Virginia landings of certain species, 1961.

The virtually constant $20 million value of the Virginia catch in recent years could be offered as proof that Virginia's fisheries have been static for a good many years. There may be noteworthy changes occurring within individual fisheries, but they seldom qualify as major trends. There has been some automation over recent years as in the cases of menhaden fishing and unloading and, to a lesser extent, in oyster steaming. On the whole, handwork remains essential throughout the industry. Wages have risen slowly over the years, and a laborer might count on a moderate livelihood only if employment was steady.

Fishery employment--both afloat and ashore--was a little below the previous year's total, but the total working time was less than last year.

The drop in the oyster landings which began in 1960, continued at an accelerated pace into 1961. However, as the year progressed, the decline tapered off, and the total landings were only about 7 percent below 1960. Despite the lower landings, a price rise resulted in oyster fishermen and vessel owners realizing nearly $600,000 more than in the previous year.

Seed oysters are an important part of the Virginia fishing industry. The 1961 catch of seed oysters from public grounds amounted

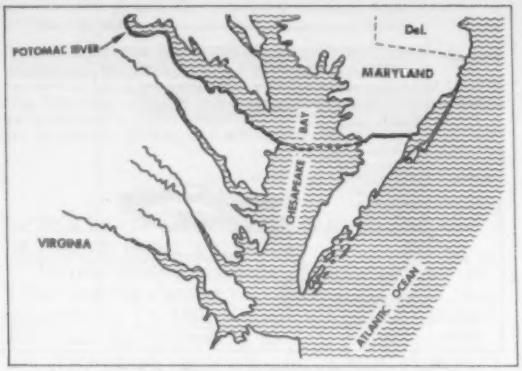


Fig. 2 - Virginia fishing areas.

to 1.5 million bushels and added nearly $1.3 million to tongers' income.

Hard crab landings were near an all-time high. The winter-dredge and the summer-pot fisheries were both quite productive. More than 45 million pounds valued at nearly $2 million were landed. Soft crabs and peelers were also in good supply.

After the depressing factors that slowed down the menhaden industry the previous year, the 1961 season returned almost to normal. Even so, one of the five processing plants remained closed. The total menhaden catch for reduction was 277.3 million pounds. The adversities of a highly competitive market compelled at least one processor to investigate new products, with the result that a plant food made from solubles was successfully placed on the market. Other products, such as pet food and fish flour, or fish protein concentrate are under serious consideration by industry members.

Hard clam fishing changed very little from the previous year. The soft clam fishing remained dormant. Clam fishing in Virginia lacks the sharp ups and downs that beset so many other segments of the fisheries. Production and prices of hard clams held fairly steady.

Wholesale Prices

EDIBLE FISH AND SHELLFISH, APRIL 1962:

The usual seasonal increase in landings occurred in April throughout the country and prices declined seasonally 1.2 percent from March. But the April 1962 wholesale price index for edible fishery products (fresh, frozen, and canned) at 118.9 percent of the 1957-59 base was 17 percent higher than in the same month of 1961. There wasn't a single fishery product included in the index that didn't bring higher prices this April than in the same month a year earlier.

Seasonally heavier landings of fish in New England ports, principally haddock, were responsible for the drop of 2.2 percent in the drawn, dressed, or whole finfish subgroup index from March to April. But prices for the subgroup this April still were 23.9 percent higher than in the same month of 1961. A drop of 26.1 percent in the ex-vessel price of large haddock at Boston was almost offset by the substantially higher prices for halibut and fresh-water fish. The Jewish holiday trade and the fact that supplies were light caused the higher prices for the more popular fresh-water varieties like whitefish and yellow pike. The market was strong throughout most of April for all the products in this subgroup.

Prices for processed fresh fish and shellfish dropped 2.3 percent from March to April. Seasonally heavier supplies were responsible for the 25-percent drop in the price of fresh haddock fillets at Boston. In the same period shucked oyster production was light as dealers processed just enough to satisfy the limited end-of-season demand, and prices remained steady at the March level. But compared to a year earlier, prices this April for all the products in the subgroup were up 17.5 percent. Prices for fresh haddock fillets were up 41.5 percent, fresh shrimp at New York City up 26.1 percent, and shucked oysters at Norfolk up 7.0 percent.

Breaded shrimp is packed in cartons prior to freezing in a shrimp-breading plant located in Brunswick, Ga. Packed boxes on center belt conveyor are carried to weigher.

Frozen fishery products moved well in April. Markets were steady to firm for most of the major products, and some shortages were reported for halibut, ocean perch fillets, and whiting. Small quantities of new-season halibut helped to alleviate the shortage slightly for that product. Markets continued strong for frozen shrimp as supplies remained short. The frozen processed fish and shellfish subgroup index for this April was down 0.9 percent from March because prices dropped for fillets of haddock and ocean perch; but prices for shrimp were slightly higher. The April index for the subgroup was 21.8 percent higher than in the same month of 1961, with prices up 2.6 percent for frozen flounder fillets, up 3.1 percent for haddock fillets, up 13.9 percent for ocean perch fillets, and up 36.8 percent for frozen shrimp at Chicago.

Canned fishery products prices remained at the same level from February through April. But the index for the subgroup this April was 10.5 percent higher than a year earlier. Compared to April 1961, prices this April were up 1.8 percent for canned pink salmon, up 10.4 percent for

Table 1 - Wholesale Average Prices and Indexes for Edible Fish and Shellfish, April 1962 With Comparisons

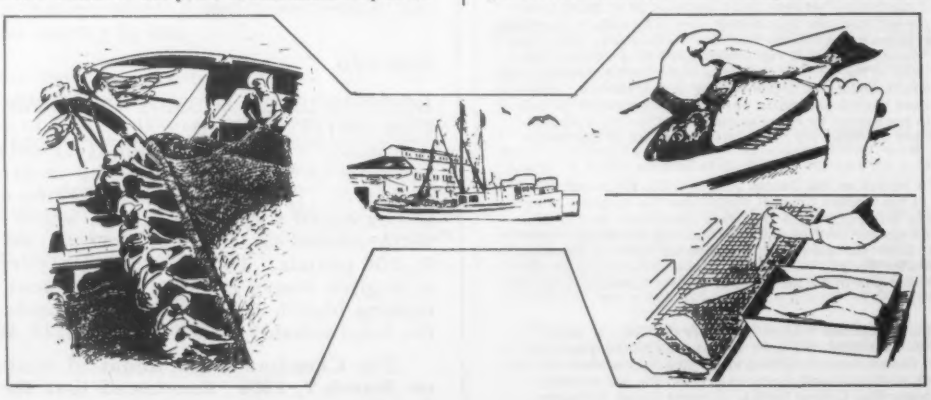
Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices 1/ ($)		Indexes 2/ (1957-59=100)			
			Apr. 1962	Mar. 1962	Apr. 1962	Mar. 1962	Feb. 1962	Apr. 1961 3/
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					118.9	120.3	119.7	101.6
Fresh & Frozen Fishery Products:					117.2	119.4	118.5	97.0
Drawn, Dressed, or Whole Finfish:					119.1	121.8	118.6	96.1
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.12	.16	91.6	124.0	107.4	43.0
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.45	.40	133.1	116.8	117.3	98.6
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.86	.86	120.5	120.5	120.5	118.8
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.85	.75	126.9	111.9	115.7	88.6
Yellow pike, L. Michigan & Huron, rnd., fresh	New York	lb.	.85	.74	139.2	120.4	120.4	83.5
Processed, Fresh (Fish & Shellfish):					120.4	123.2	125.4	102.5
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.38	.50	91.1	121.4	109.3	64.4
Shrimp, lge. (26-30 count), headless, fresh	New York	lb.	.99	1.00	116.0	117.2	123.1	92.0
Oysters, shucked, standards	Norfolk	gal.	7.75	7.75	130.7	130.7	130.7	122.2
Processed, Frozen (Fish & Shellfish):					108.0	109.0	107.7	88.7
Fillets: Flounder, skinless, 1-lb. pkg.	Boston	lb.	.40	.40	100.1	100.1	100.1	97.6
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.33	.35	96.7	101.1	96.7	93.8
Ocean perch, lge., skins on 1-lb. pkg.	Boston	lb.	.33	.34	115.7	119.2	119.2	101.6
Shrimp, lge. (26-30 count), brown, 5-lb. pkg.	Chicago	lb.	.95	.95	112.7	112.1	112.1	82.4
Canned Fishery Products:					122.1	122.1	122.1	110.5
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs.	Seattle	cs.	28.50	28.50	124.2	124.2	124.2	122.0
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs.	Los Angeles	cs.	12.15	12.15	107.9	107.9	107.9	97.7
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 24 cans/cs.	Los Angeles	cs.	5.25	5.25	118.5	118.5	118.5	101.5
Sardines, Maine, keyless oil, 1/4 drawn (3-3/4 oz.), 100 cans/cs.	New York	cs.	12.81	12.81	164.3	164.3	164.3	112.2

1/ Represent average prices for one day (Monday or Tuesday) during the week in which the 15th of the month occurs. These prices are published as indicators of movement and not necessarily absolute level. Daily Market News Service "Fishery Products Reports" should be referred to for actual prices.

2/ Beginning with January 1962 indexes, the reference base of 1947-49=100 was superseded by the new reference base of 1957-59=100.

3/ Recomputed to be comparable to 1957-59=100 base indexes.

canned tuna, up 16.7 percent for California sardines, and up 46.4 percent for Maine sardines. The canned tuna pack this year was only slightly less than last year at the end of April, but less light meat and more white meat was packed the first four months of this year. A substantial drop in domestic landings of yellowfin tuna in California curtailed the pack of light meat tuna. Through April the pack of Maine sardines was very light and the available stocks had practically been sold out by the end of April. The 1961/62 season pack for California sardines was again a small one.



International

UNESCO INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

CONSULTATIVE COMMITTEE MEETS IN PARIS:

The consultative committee of the UNESCO Intergovernmental Oceanographic Commission met in Paris, France, April 10-12, 1962. The meeting was attended by a United States delegation.

The consultative committee was established at the First Session of the Intergovernmental Oceanographic Commission in October 1961 for the purpose of working with the Bureau and Secretariat of the Commission in the development of the Commission's program during the period between Sessions.

NORDIC CONTACT COMMITTEE FOR FISHERIES

ESTABLISHMENT OF COMMITTEE:

Nordic fisheries matters will be coordinated by a Nordic Contact Committee in the future, if member governments approve one of the recommendations made by the Nordic Council at its 10th session in Helsinki March 17-23, 1962. The proposal by the Danish Government which was adopted without change reads:

"The Council recommends to member governments that a permanent Nordic Contact Committee for Fisheries Matters be established. The purpose of this Committee will be to follow developments and to consider concrete problems concerning fishing in the Nordic countries as well as problems of marketing between two countries or in third countries. In addition, the Committee should be able to consider other problems of common interest which arise. The Committee should consist of representatives of the Government authorities in the Nordic countries and a corresponding number of representatives of the fishing organizations. The Committee should assemble whenever an initiative to this effect is presented by representatives of the Government authorities or fisheries organizations in one of the countries."

In its report on the Danish proposal the Economic Committee of the Nordic Council stated that the purpose in establishing this permanent fisheries committee was to provide a forum for continued contact among the Nordic countries on fisheries questions. It said that such a committee would bridge the gap between the biennial Nordic fisheries conferences and make the work of these conferences more effective.

In other fisheries matters, the Nordic Council postponed consideration of a joint Finnish-Icelandic-Norwegian-Swedish Government proposal regarding cooperation in fisheries problems and a proposal from the 8th session (1960) regarding fishing limits. (United States Embassy, Helsinki, report of March 28, 1962.)

ATOMIC-PROPELLED MARINE RESEARCH VESSEL

The proposed nuclear-propelled marine research vessel, to be built in France, was discussed at a recent meeting in the Hague, along with proposals for a Swedish bulk carrier and a Dutch tanker, by an Evaluation Group on Nuclear Ship Propulsion established by the European Nuclear Energy Agency (ENEA) of the OECD. The marine research vessel was reported to be 361 feet in length with 7,000 shaft h.p. The Danish expert on the study group said at the Hague there was discussion as to whether the vessel should be constructed to withstand ice, the opinion being that if this were done it could not be constructed with a well. The vessel is designed by shipbuilders in LeHavre, France, designers and constructors of the French marine research vessel Thalassa.

Proposals for the three types of vessels are being referred to an ENEA Study Group for Nuclear Ship Propulsion which will choose only one of the three to be built (April 6, 1962, report from the Regional Fisheries Attache, United States Embassy, Copenhagen.)

Note: Also see Commercial Fisheries Review, May 1962 p. 42, March 1962 p. 35.

Canada

DOGFISH LIVER SUBSIDY PROGRAM FOR 1961/62 ENDED:

Canada's 1961/62 dogfish liver subsidy program on the West Coast was terminated on March 31, 1962. Total deliveries under the extended subsidy program, which was reintroduced on March 6, amounted to 81,600 pounds. This brought total purchases of dogfish livers in the 1961/62 fiscal year (ending March 31) to 1,228,500 pounds, and the total subsidy payments to C$147,421.

The Canadian Department of Fisheries on March 7, 1962, announced that the dogfish liver subsidy program had been extended

Canada (Contd.):

to allow for the take up of the remaining $12,000 left in the subsidy allocation for the fiscal year 1961/1962.

A total of C$150,000 was earmarked by the Government to cover the subsidy program for the fiscal year ending March 31, 1962. Under the program, 12 cents per pound was paid for dogfish livers. The Department had terminated the program on November 6, 1961, as it looked like all the funds available for the program had been expended.

* * * * *

BRITISH COLUMBIA
FISHERY TRENDS, 1961:

In comparison with the 1960 season, Canada's British Columbia fishing industry in 1961 enjoyed a banner year. The landed value of all fish and fish products for the first ten months of 1961 was 45 percent higher than for a like period in 1960. However, as 1960 was an extremely poor year for the industry, the increase was not quite so significant. An excellent salmon run was largely responsible for the increase in the total landed value.

Halibut landings in 1961 dropped from those in 1960, but brought higher prices; the landed value of the catch was higher than that of 1960. Canadian prices were generally higher than those in United States ports.

The price weakness in herring oil and meal continued to depress that segment of the industry, although herring landings in 1961 were up over those of 1960. The herring fleet, unable to sail for most of 1960 due to overproduction and poor prices, resumed fishing in late 1960.

For the first seven months of 1961, exports through British Columbia customs ports of fish, marine animals, and fish products were valued at C$10 million dollars, a drop of $1.5 million from the same period in 1960. A drop in exports to the United Kingdom was largely responsible for the decline. (United States Consulate, Vancouver, report of March 22, 1962.)

Denmark

FISH FILLETS AND BLOCKS AND FISHERY INDUSTRIAL PRODUCTS EXPORTS, FEBRUARY 1962:

Denmark's exports of fresh and frozen fillets and blocks during the first two months of this year were 9.6 percent or almost 1.1 million pounds greater than in the same period of 1961. The exports of cod and related species dropped 15.3 percent, but flounder and sole fillets were up 15 percent and herring fillets were up 89.3 percent. During the first two months this year exports to the United States of fresh and frozen fillets and blocks of 1.6 million pounds (mostly cod and related species) were down 8.2 percent from the exports of almost 1.8 million pounds in the same period of 1961.

Denmark's exports of fresh and frozen fish fillets and blocks during February 1962 were up 14.5 percent or 0.9 million pounds. Of the total exports, almost 1.4 million pounds (mostly cod and related species) were shipped to the United States in February. The United States was the leading buyer in February followed by the United Kingdom.

Denmark's Exports of Fresh and Frozen Fish Fillets and Blocks and Fishery Industrial Products, February 1962 1/

Product	February		Jan.-Feb.	
	1962	1961	1962	1961
	(1,000 Lbs.)			
Fillets and Blocks:				
Cod and related species	3,538	4,051	5,385	6,356
Flounder and sole	1,601	1,291	3,487	3,033
Herring	2,239	1,083	3,524	1,862
Other	51	63	87	136
Total	7,429	6,488	12,483	11,387
	(Short Tons)			
Industrial Products:				
Fish meal, fish solubles, and similar products	3,470	1,992	6,852	5,182

1/Shipments from the Faroe Islands and Greenland direct to foreign countries not included.

Denmark's exports of fish meal, fish solubles, and similar products in January-February 1962 were up 32.2 percent or 1,670 tons from the same two months a year earlier.

During February 1962, Denmark exported 74.2 percent or 1,478 metric tons more meal, fish solubles, and similar products than in the same month of 1961. The principal buyers were West Germany and the United Kingdom.

* * * * *

SHARK INDUSTRY AND EXPORT MARKET:

There is no domestic market for sharks and dogfish in Denmark because they are not favored as a food fish. Practically all of the Danish catch is exported, fresh or frozen, to other European countries.

Although Denmark is not a market for sharks or dogfish, there is a small annual catch for export, either fresh or frozen. A small amount of dogfish is smoked for local consumption.

Herring shark and piked dogfish catches brought average ex-vessel prices of 3.39 kroner per kilo (22.3 U.S. cents a pound) and 0.86 kroner per kilo (5.7 cents a pound), respectively, in 1961. The export value of herring sharks in 1961 averaged 3.68 kroner a kilo (24.2 cents a pound) for fresh and 4.12 kroner a kilo (27.1 cents a pound) for frozen.

The Danish market uses sharks or dogfish as food only in insignificant amounts, so there is little chance a substantial market could be created in that country.

Denmark (Contd.):

Danish Landings, Value, and Exports of Sharks and Dogfish, 1961

Item	Herring Shark or Porbeagle 1/			Piked Dogfish 2/		
	Qty.	Value		Qty.	Value	
	Metric Tons	1,000 Kroner	US$ 1,000	Metric Tons	1,000 Kroner	US$ 1,000
Landings	425	1,443	209	191	165	24
Exports:						
Fresh--to:						
Italy	378	1,401	203	-	-	-
West Germany	15	48	7	-	-	-
Other 3/	7	25	4	-	-	-
Total fresh	400	1,474	214	-	4/	-
Frozen--to:						
Italy	82	338	49	-	4/	-

1/ Lamna cornubica.
2/ Acanthias vulgaris.
3/ Individual countries not available in 1961, but in 1960 Belgium-Luxembourg, Switzerland, and Sweden imported almost 4 tons from Denmark.
4/ Quantities of piked dogfish exported were so small they were lumped in an "Other" category and unavailable as to amount or value.

Herring sharks are taken in the North Sea and Skagerrak mostly by vessels fishing with long lines. Dogfish are taken incidentally in trawls and Danish seines. There is a fishery for mackerel sharks in the Northwest Atlantic off the New England and Canadian coasts by a Faroese company utilizing three vessels. The sharks are frozen on board and sold in Italy under a current contract amounting to about $580,000. (Report of April 5, 1962, from the Regional Fisheries Attache, United States Embassy, Copenhagen.)

Fiji Islands

LATEST DEVELOPMENTS ON TUNA BASE PROPOSED BY JAPAN:

Japanese Diet member Tetsuzo Matsuda's plan to establish a large tuna fishing base at Levuka, Fiji Islands, was severely criticized by the Japanese fishing industry when it was first publicized, the Japanese periodical Shin Suisan Shimbun of April 23, 1962, reported. Criticism was directed, for example, at Matsuda's plan to utilize 60-ton vessels and to exempt those vessels from licensing requirements. However, the Japanese tuna industry now seems to be much less critical of the Matsuda Plan, and this can be ascribed to the announcement made by Minister of Agriculture and Forestry Kono that the 80-odd fishing vessels displaced from the salmon fishery this year would be diverted to tuna fishing in the South Pacific Ocean.

Reportedly, Diet member Matsuda, who is presently serving as advisor to the South Pacific Ocean Fisheries Cooperative Association, which is scheduled to manage the tuna base at Levuka when it is established, is willing to stake his political future on the success of his plan, and was scheduled to depart for the Fiji Islands on April 27 to conduct further discussions with Fijian authorities.

The Japanese periodical pointed out that it is not yet known whether the Fiji Islands tuna base plan includes operation of displaced Japanese salmon vessels, and, if so, whether those vessels are to be exported to the Fiji Islands, in which case they would not be subject to Japanese fishery laws. The only control the Fisheries Agency would then be able to exercise over them would be to designate port of landing and to regulate export quotas.

The periodical added that the large United States tuna packers have become interested in the Matsuda Plan. United States tuna packers are searching for new sources of tuna and are said to be seeking tuna bases in the South Pacific Ocean and in Southeast Asia, and one of them has already approached Japanese industry members for complete details of the Matsuda Plan.

Apparently, tuna exports to the United States from the Fiji Islands base, if established, are to be handled by an Osaka trading firm whose executive director was formerly an official of the Fisheries Agency and more recently was connected with a marine products trading firm. The Osaka trading company is a dry goods specialty firm and has maintained an office in the Fiji Islands since the end of World War II.

A large Japanese marine products trading firm is also reported to be involved in the Matsuda Plan, and a large United States tuna packer reportedly is seeking arrangements with the marine products firm and the Osaka trading company to purchase tuna landed at the Levuka base.

In the final analysis, reported the Shin Suisan Shimbun, the Matsuda Plan seems to have gained momentum as a result of a series of developments, beginning with an acute worldwide shortage of tuna, which the commercial firms were quick to sense and to act upon, and a strong demand for tuna in the United States. In this connection, the problem of diverting to some other fishery the many Japanese fishing vessels to be displaced from the salmon fishery this year served to focus attention on the South Pacific tuna fishery.

Iceland

UTILIZATION OF FISHERY LANDINGS, 1960-61:

How Utilized	1961	1960
	(Metric Tons)	
Herring 1/ for:		
Oil and meal	225,673	103,547
Freezing	25,259	9,771
Salting	68,068	21,834
Fresh on ice	6,797	1,286
Canning	114	-
Groundfish 2/ for:		
Fresh on ice landed abroad	33,115	27,784
Freezing and filleting	144,789	200,032
Salting	68,819	74,866
Stockfish	47,583	56,098
Home consumption	8,389	8,636
Oil and meal	3,708	6,580
Shellfish for:		
Freezing: Lobster	1,490	1,974
Shrimp	1,062	998
Canning (shrimp)	323	338
Total production	635,189	513,744

1/ Whole fish.
2/ Drawn fish.

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FISHERY LANDINGS BY PRINCIPAL SPECIES, 1960-61:

Species	1961	1960
	(Metric Tons 1/)	
Cod	193,130	243,396
Haddock	41,088	33,716
Saithe	11,847	10,236
Ling	5,180	5,411
Wolffish (catfish)	1,793	8,629
Cusk	5,069	7,027
Ocean perch	26,963	55,859
Halibut	1,700	1,680
Herring	325,911	136,438
Shellfish	2,875	3,311
Other	9,633	8,041
Total	635,189	513,744

1/ Except for herring which are landed round all fish are drawn weight.

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Ireland

FISH FARMS TO PRODUCE RAINBOW TROUT FOR EXPORT:

Fish farms on an extensive scale to produce rainbow trout for export are being set up near Cahirciveen, Kerry County, Ireland, by a businessman of Skagen, Denmark, who has wide interests in the Danish fishing industry.

Announcing the new Kerry industry, the Industrial Development Authority said in Dublin that a new firm is completing a hatchery on the Finglas River in Kerry and expects to have the first fish farm on the Comeragh River completed ahead of schedule by mid-summer 1962.

In addition, Kerry farmers will be encouraged to set up their own trout farms and sell the fish to the new company in Cahirciveen to process for export. A cold-storage plant for trout and salt-water fish will also be built at Renard Point, Cahirciveen.

A Danish fishing expert has been in Ireland for some time working on the project. The Danish businessman said he chose Kerry as its clear fresh streams were particularly suitable for raising trout. (The Fishing News, March 23, 1962.)

Italy

DUTY-FREE FROZEN TUNA IMPORT QUOTA SET:

The Japanese Foreign Ministry's special envoy stationed in Italy reports that Italian tariff regulations on frozen tuna imports reportedly have not yet been formally documented. However, according to information he has obtained from Italian officials, frozen tuna imported into Italy on and after January 1, 1962, will be admitted free of duty up to a total of 25,000 metric tons, of which Japan's quota will be 14,000 metric tons. Imports over and beyond the 25,000-ton quota will be dutiable at the rates of 7.5 percent for tuna used for canning purposes and 20.1 percent for tuna sold to the fresh fish trade.

Of the total duty-free import quota of 25,000 tons, the 11,000 tons which remain after deducting Japan's allocation of 14,000 tons may partly be allocated to Japan should the quantity of frozen tuna exports to Italy by other countries be very small. (Suisan Keizai Shimbun, April 10, 1962.)

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IMPORT DUTY ON FISH AND SHELLFISH MEAL REDUCED

The Italian Ministry of Finance, in Circular 5472 of December 23, 1961, reduced the import duty to 5 percent ad valorem for consignments from all sources for flour and meals of fish, crustaceans, or molluscs, not for human consumption (subheading No. 23.09-B of the new Italian tariff), according to the British Board of Trade Journal of March 16, 1962.

Japan

LOWERING OF UNITED STATES TARIFF ON CANNED TUNA IMPORTS SOUGHT:

The Japan Canned Tuna Packers Association submitted a request on April 15, 1962, to the Japanese Fisheries Agency Director that prudent measures be taken to seek the lowering of United States tariff rates on canned tuna imports. According to Japanese periodical Suisan Keizai Shimbun of April 26, 1962, the Association contends that Japanese exports of frozen tuna to the United States can be expected to increase in the future because a catch limit of 83,000 tons of yellowfin tuna would be placed on the eastern Pacific yellowfin fishery if the United States Congress acts favorably on a bill being considered, and this quota falls far short of United States domestic demand for tuna. However, imposition of a high tariff on imports of canned tuna by the United States is stifling expansion of Japanese exports of that product, the Japanese periodical reported.

Several moves have been made by Japan to seek the lowering of United States tariffs on canned tuna imports. This matter was submitted for Government consideration by the Japanese tuna industry at the recent conference on export promotion measures (Agricultural and Marine Products Export Council meeting held on March 20), and the Japanese Government is expected to take some kind of action on the industry's recommendation. It was also discussed in fall of 1961 between Japanese Agriculture and Forestry Minister Kono and United States Secretary of the Interior Udall at the Japan-United States Economic Trade Council meeting held at Hakone, Japan. Also, Kono wrote a letter to Secretary Udall in an effort to promote exports of canned tuna to the United States.

Minister Kono had hoped to discuss promotion of Japanese canned tuna for export to the United States at the May meeting of the Japan-United States Economic Trade Council, but the United States is reported to hold some differences of opinion concerning the placing of this subject on the agenda. Thus, reaction of the Japanese Government to industry's latest request to seek the lowering of the United States tariff on canned tuna imports is being followered attentatively by the Japanese tuna industry.

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Japan (Contd.):

FIFTH SALE OF CANNED TUNA IN BRINE FOR EXPORT TO THE UNITED STATES:

The Japan Canned Foods Exporters Association announced early in April 1962 that a total 230,000 cases of canned tuna in brine for export to the United States was to be offered at the fifth canned tuna sale, consisting of 130,000 cases of white meat tuna and 100,000 cases of light meat tuna. Deliveries were to be completed by June 15, 1962.

Japanese Sales of Canned Tuna In Brine For Export to U. S., 1962

Product	Sale Number					
	Fifth	Fourth	Third	Second	First	Total
	(1,000 Cases)					
Tuna:						
White meat	130	130	100	130	130	620
Light meat	100	70	80	130	100	480
Total	230	200	180	260	230	1,100

Export prices were the same as for the first four sales--$9.95 per case (No. ½, 7-oz., 48's) f.o.b. Japan for white meat tuna and $7.70 per case (No. ½, 7-oz., 48's) f.o.b Japan for light meat tuna. (Suisan Tsushin, April 12, 1962.)

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EXPORTS OF CANNED TUNA IN OIL, FY 1961:

Japanese canned tuna in oil approved for export in fiscal year 1961 (April 1961-March 1962) to countries other than the United States and Canada totaled 1,513,395 actual cases, according to data compiled by the Export Canned Tuna Packers Association. This was an increase of 429,579 cases over FY 1960 (April 1960-March 1961), when exports totaled 1,083,816 cases; and 36,279 cases over FY 1959, when exports totaled 1,477,116 cases.

White meat tuna comprised 20 percent of total exports, amounting to 306,617 cases. Light meat tuna totaled 1,206,778 cases, or 80 percent, of which yellowfin comprised 145,500 cases, or 10 percent; big-eyed 762,766 cases, or 50 percent; and skipjack 298,512 cases, or 20 percent. (Suisan Keizai Shimbun, April 13, 1962, and Suisan Tsushin, April 24, 1961.)

Exports of Japanese Canned Tuna in Oil, FY 1961 with Comparisons

Principal Countries of Destination	FY 1961	FY 1960	FY 1959
	(No. of Actual Cases)		
West Germany	660,025	438,906	484,808
Canada	206,535	151,754	160,385
Netherlands	122,670	62,999	85,863
Switzerland	87,581	63,573	36,918
Belgium	58,759	53,197	92,360
England	54,662	18,489	105,135
Saudi Arabia	46,240	-	-
Lebanon	45,494	70,260	114,744
Aden	44,914	-	-
Syria	38,239	-	-
Kuwait	27,391	-	-
Malta	23,386	-	-
Austria	22,602	-	-
Egypt	18,426	-	-
Italy	-	15,337	26,584

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FROZEN TUNA EXPORTS IN FY 1961:

Data compiled by the Japan Frozen Foods Exporters Association reveal that frozen tuna approved for export in FY 1961 (April 1961-March 1962) to the United States and Canada totaled 93,730 short tons, compared to 76,591 tons in 1960 (April 1960-March 1961). Exports of frozen tuna loins totaled 4,500 short tons, of which albacore loins made up 1,257 tons, yellowfin loins 3,066 tons, and other tuna loins 177 tons.

Frozen tuna approved for export to Europe in FY 1961 totaled 33,855 metric tons, or 6,185 tons less than in FY 1960. (Suisan Tsushin, April 5, 1962.)

Table 1 - Japanese Frozen Tuna Exports to the United States and Canada, FY 1961 with Comparisons

Species	Direct Shipments		Trans-shipments		Total	
	FY 1961	FY 1960	FY 1961	FY 1960	FY 1961	FY 1960
	(Short Tons)					
Albacore	27,744	23,943	16,138	7,912	43,882	31,855
Yellowfin	32,989	26,934	12,635	17,375	45,624	44,309
Big-eyed	669	70	2,925	-	4,224	-
Skipjack	582	71		-		427
Bluefin	48	286		-		-
Total	62,032	51,304	31,698	25,287	93,730	76,591

Table 2 - Japanese Frozen Tuna Exports to Europe and Africa, FY 1961 with Comparisons

Country of Destination	Quantity	
	FY 1961	FY 1960
	(Metric Tons)	
Italy	21,639	22,414
Yugoslavia	7,293	11,364
Czechoslovakia	1,776	-
Tunisia	636	606
Libya	585	732
Spain	699	-
Others	1,227	4,924
Total	33,855	40,040

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FROZEN TUNA TO BE EXPORTED TO CZECHOSLOVAKIA:

Two Japanese trading firms recently concluded an agreement with a Czechoslovakian Government agency to export to Czechoslovakia 600 metric tons of frozen albacore and big-eyed tuna, to be delivered by mid-April 1962. The frozen tuna were to be delivered to the port of Hamburg at $340 per metric ton for albacore and $310 per metric ton for big-eyed tuna. Of the total shipment of 600 tons, one of the Japanese firms handled 400 tons and the other firm 200 tons. (Shin Suisan Shimbun Sokuho, April 6, 1962.)

Japan (Contd.):

Editor's Note: In April 1961, two other large Japanese fishing companies initially entered into an agreement with Czechoslovakia to export a total of 1,050 metric tons of Atlantic Ocean frozen tuna, marking the beginning of tuna trade between Japan and Czechoslovakia. Price of that shipment was at $285 a metric ton, species unidentified, delivery Hamburg, and in payment Japan was to receive barter goods. Deliveries were completed by early fall, and in September 1961 Czechoslovakia sought to import additional tuna.

Export statistics compiled by the Japan Frozen Foods Exporters Association reveal that in FY 1961 (April 1961-March 1962), frozen tuna exports to Czechoslovakia totaled 1,776 metric tons, and Czechoslovakia now ranks as the third largest European importer of Japanese frozen tuna.

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JAPANESE FISHERIES AGENCY DESIGNATES PENANG AND SINGAPORE AS TUNA TRANSSHIPMENT BASES:

On April 18, 1962, the Japanese Fisheries Agency officially designated the ports of Penang (Malaya) and Singapore as transshipment bases for Indian Ocean-caught tuna. Earlier, on March 22, the Export Frozen Tuna Producers Association had designated these two ports as transshipment bases. The Agency also announced that it had approved the application of the Japanese company, which operates the joint tuna packing plant located at Penang, to land at Penang 6,000 short tons of fresh tuna for freezing and transshipment to the United States. It also authorized a quota of 4,000 short tons of Indian Ocean frozen tuna for transshipment to the United States from either Penang or Singapore. No limits are being placed on landing tuna at Penang or Singapore for shipment to Japan.

Following the announcement by the Fisheries Agency, a number of tuna vessels were reported to be making preparations to depart for Penang, which they would use as a base port to fish in the Indian Ocean. They include the vessels Seiju Maru No. 8 (800 gross tons), Zuiho Maru No. 11 (180 gross tons), Kompira Maru No. 1 (240 gross tons), Kinei Maru No. 3 (226 gross tons), and the Tenjin Maru, Hoko Maru No. 32, and the Kotoshiro Maru, the last three vessels being under 200 tons gross each. The Seiju Maru is to serve as a freezership (freezing capacity, 22 metric tons per day), and ice-carrying fishing vessels based at Penang are to deliver their catches to the Seiju Maru or to the Penang base, which has a unit capable of freezing 7.5 metric tons per day. Fresh tuna which cannot be handled by either the Seiju Maru or the Penang cold-storage plant are to be processed for canning by the packing plant at Penang.

Reportedly, the Japanese firm operating the Penang plant will soon apply for a loan of about 100 million yen (US$277,780) from the Overseas Economic Cooperative Fund to enlarge the company's cold-storage facilities at Penang. Present holding capacity of the cold-storage

plant is about 200 metric tons. The company hopes to increase the holding capacity an additional 150 metric tons, to 350 metric tons. The company does not immediately plan to enlarge its 7.5-ton capacity freezing unit, although it plans to do so in the future when the necessity arises. (Suisan Tsushin, April 20; Shin Suisan Shimbun Sokuho, April 19, 1962.)

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PRESS COMMENTS ON UNITED STATES PROPOSAL TO REGULATE EASTERN PACIFIC TUNA FISHERY:

Two United States Government representatives were in Japan early in April 1962 to explain to the Japanese Government and the Japanese tuna industry the proposal of the United States to regulate the Eastern Pacific yellowfin tuna fishery. The United States proposal is a result of recommendations by the International Inter-American Tropical Tuna Commission. The two United States representatives were Donald R. Johnson, California Area Director, Bureau of Commercial Fisheries, U. S. Department of the Interior, and Fred Taylor, Deputy Special Assistant for Fisheries and Wildlife to the Under Secretary, Department of State.

The news stories which appeared in the Japanese press reporting in substance the meetings held between the two representatives of the United States Government and Japanese Government and industry officials follow in part. In two instances the California Area Director disagrees with the press

Japan (Contd.):

reports and this has been indicated in the proper place in the following translations of the Japanese press reports.

The following is a translation of the article in the Japanese periodical Suisan Keizai Shimbun of April 3, 1962:

In connection with the proposed United States legislation to regulate the yellowfin tuna fishery in the Eastern Pacific Ocean, the Japanese Foreign Ministry and the Fisheries Agency held a question-and-answer meeting on April 2 in the conference room of the Foreign Ministry with United States fishery representatives who were dispatched to Japan by the United States Government.

At this meeting, the United States representatives presented the most current United States plan to regulate the yellowfin tuna fishery in the Eastern Pacific Ocean and explained its contents to the Japanese representatives. American thinking behind the proposed legislation was sought at this meeting, and the United States representatives were asked to explain points that were not clear to the Japanese.

In February, Director Ito and Mr. Uchimura of the Japanese Fisheries Agency attended the Ottawa conference of the International North Pacific Fur Seal Commission and brought back with them the draft of the proposed Eastern Pacific Ocean yellowfin tuna regulation. The United States, after subsequent study of the proposal, revised its contents and on March 30, produced a final plan, details of which were disclosed to the Japanese Government representatives on April 2. By request of the United States representatives, the Japanese Government is withholding public announcement of the details of the current United States regulatory measures, the reason being that the final plan reportedly has not yet been explained to the American tuna industry.

Japanese observers believe that the reason for withholding announcement is that the United States plan for yellowfin tuna regulation may have been considerably revised since the proposal was initially announced. In view of the fact that the proposed regulation has been progressively strengthened upon each re-examination, observers feel that the final regulatory plan may contain further restrictions, such as extension of the area of catch regulation, adjustment of the following year's quota if overfishing occurs in any one year in the regulated area, and restrictions on imports from non-cooperating countries.

The proposed regulatory area so far disclosed embraces the waters from the American mainland westward to 120° W. longitude north of 5° N. latitude and from the mainland westward to 110° W. longitude south of 5° N. latitude, the boundary north of 5° N. latitude being provisional. Judging from earlier announcements made about somewhat adjusting the boundary off the southern California coast, it can be assumed that this boundary was changed in the current plan.

Concerning the catch quota, there seems to have been no changes made in the plan to limit 1962 landings to 83,000 tons. However, some changes may have been made concerning adjustment of catch quota next year if the 1962 catch exceeds the quota set at 74,600 tons for the open season and up to 8,400 tons as incidental catch after the season closes around October 16. Regulation of yellowfin tuna imports from cooperating countries and restrictions on tuna imports from noncooperating countries were probably also clarified during the meeting.

Originally, the United States proposal to regulate the yellowfin tuna fishery was requested by the Inter-American Tropical Tuna Commission in view of the "necessity of conserving yellowfin tuna stocks in the Eastern Pacific Ocean." A bill has already been submitted to the U. S. Senate Committee on Commerce.

Japan has been requested to submit catch statistics for the proposed area of yellowfin tuna regulation and to cooperate in the regulatory program. The Foreign Ministry and the Fisheries Agency will likely get together as soon as possible with the Japanese tuna industry to examine the proposed United States tuna legislation in order to determine Japan's attitude toward this matter, which Japan will probably communicate to the United States sometime during April. If Japan does not cooperate in this program, it will face severe import restrictions on tuna, which will hurt Japan since it annually exports 100,000 short tons of tuna to the United States. Opinions are being expressed in some quarters that it would be better for Japan to cooperate in the yellowfin tuna regulation proposed by the United States inasmuch as it seems that the catch quota within the regulatory area is not going to be allo-

Japan (Contd.):

cated according to countries and any one country can land as much tuna as it can until the quota is reached.

In part, the Japanese periodical Suisan Keizai Shimbun of April 4, 1962, carried the following news story:

The two United States representatives, who are meeting with Japanese Government leaders, fishery scientists, and tuna industry representatives for 2 to 3 days, have given the following explanations regarding the substance of the yellowfin tuna regulations and the United States' thinking on this subject:

1. Scope of the regulatory area was determined by the U. S. Department of the Interior based on the advice of the Inter-American Tropical Tuna Commission. The regulatory area will extend from the American mainland west to 125° W. longitude north of 15° N. latitude, then east along 15° N. latitude to 120° W. longitude, then south to 5° N. latitude, east to 110° W. longitude, south to 15° S. latitude, east to 95° W. longitude, and south along 95° W. longitude. This is the real regulatory area and the Department of the Interior intends to make no further changes. The regulatory area heretofore understood by Japan embraced the area from the American mainland west to 120° W. longitude north of 5° N. latitude and from the mainland west of 110° W. longitude south of 5° N. latitude. This area was selected on the basis of scientific views held by the International Tropical Tuna Commission and will be referred to as the tuna resources investigation area. From the administrative standpoint, this area would be difficult to regulate, so the U. S. Department of the Interior made changes. (Editorial Comment: The last sentence should read, "Department of the Interior proposes to make changes," according to the California area Director.)

2. Total yellowfin catch quota for 1962 in the regulatory area will be 83,000 tons, of which 74,600 tons can be taken during the open season. The season will close as soon as this quota is reached. No individual catch quota will be assigned to any fishing vessel. After the season closes, a total of 8,400 tons of yellowfin tuna will be allowed to be taken incidentally to other tuna, but the incidental catch of yellowfin tuna must not exceed 15 percent. In this case, landing permits to be issued by the United States Government must be presented by fishing vessels and their catches will be inspected to make certain that their yellowfin tuna catch does not exceed 15 percent. If fishing vessels observe the 15 percent catch regulation, even if their aggregate yellowfin catch exceeds 8,400 tons, adjustment will not have to be made in the quota for the following year. (Note: Japan had originally thought that quota adjustments would be made the following year.) (Editorial Comment: "Japan's original idea, in this case, was correct. They were told that since the quota was being set to reduce fishing intensity on a population of marine animals, failure to reduce the catch in a certain year would tend to be followed by recommendations for more restriction in future years," according to the California area Director.

3. The United States cannot definitely state when the yellowfin tuna fishing season will open or close. However, assuming the season opens in January, it will probably take until September to attain the 74,000-ton catch limit. Fishing vessels are requested to provide catch statistics on yellowfin tuna taken in the regulatory area to the International Tropical Tuna Commission.

4. With respect to the handling of tuna imports from cooperating countries and application of import restrictions on noncooperating countries, no change has been made in the previously established policy of requiring certificates of origin to determine whether the yellowfin tuna were taken from within the regulatory area.

5. The United States has already explained the contents of the proposed yellowfin tuna regulations to such countries as Mexico, Peru, and Colombia.

The Japanese periodical Suisan Tsushin of April 5 states that the Japanese tuna industry's attitude towards the United States proposal to regulate the Eastern Pacific yellowfin tuna fishery can generally be summed up as follows:

1. Japan does not completely share the theory expounded by the United States that tuna resources are declining. In particular, the American theory that the yellowfin stocks within the proposed regulatory area are different from stocks outside the proposed regulatory area is viewed with skepticism by many Japanese scientists, including Dr. Nakamura, Director, Nankai Regional Fisheries Research Laboratory. In contrast to the Japanese view

Japan (Contd.):

that yellowfin stocks migrate over extensive distances in an east-west direction, the United States claims that the yellowfin tuna migrate in a north-south direction.

Many in the industry feel that possibly joint scientific investigations should be conducted by Japan and the United States to determine whether regulations are necessary. Discussion should then be held on regulatory methods when these researches prove that regulations are necessary.

2. As for the method of regulating the Eastern Pacific yellowfin fishery, in theory it is difficult to accept the idea of not restricting the use of purse-seine gear, which are considered most improperly suited for conserving yellowfin resources, and to regulate use of long-line gear in the same manner as purse-seine gear. This view is shared by a fair number of industry people in Japan. (Editorial Comment: The Japanese view is based on the fact that long line-caught yellowfin tuna on the average are larger in size than purse seine-caught yellowfin tuna.)

3. There is some question concerning the legality of demands being made to apply the yellowfin regulations to countries which are not members of the Inter-American Tropical Tuna Commission. Views are being expressed that it is only proper that the regulatory methods should first be studied on an equal basis by all countries to be affected by the regulations, and regulations then drafted.

4. From the practical standpoint, the two points stressed by the United States, transmission of catch data and withholding of incidental catch of yellowfin tuna to less than 15 percent during the closed season, are not damaging at all to Japan. Thus, rather than be compelled to observe complicated arrangements, like filing certificates of origin, it would be wiser to serve notice to the United States of Japan's intention to actively cooperate with the United States proposal. This view is widespread within the industry.

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TUNA LANDINGS AT YAIZU, MARCH 1962:

A total of 10,758 metric tons of fish valued at 1,154 million yen (US$3.2 million) was landed at Yaizu, leading Japanese fishing port, during March 1962. This was an increase in landings of 22 percent and an increase in value of 23 percent over the same month last year. (Nippon Suisan Shimbun, April 6, 1962.)

Yaizu Fishery Landings, Principal Species, March 1962

Species	Quantity	Average Price	
	Metric Ton	Yen/Kg.	US$/Short Ton
Indian bluefin	2,745	117	295
Big-eyed	1,339	117	295
Yellowfin	1,860	121	305
Albacore	1,801	129	325
Skipjack	384	97	245
Mackerel	1,293	36	91

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TUNA IMPORTS FROM OKINAWA:

The first delivery of foreign-caught tuna ever to be landed at the Japanese tuna port of Yaizu was expected to have taken place on March 30, 1962. On that date, the Okinawan carrier vessel No. 1 Ryusui Maru (95 gross tons) delivered about 25 metric tons of yellowfin tuna, with the shipment to be processed through customs and handled as imports.

According to officials of the Japanese firm handling the shipment, additional tuna would likely be imported from Okinawa, which has about three tuna vessels, if the trial shipment proved successful. (Suisan Keizai Shimbun, March 30, 1962.)

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JAPANESE SALMON FEDERATION'S VIEWS ON TRIPARTITE NORTH PACIFIC FISHERIES CONVENTION:

The Japanese National Federation of Salmon Fisheries Cooperative Associations (NIKKEIREN) considers the problem of revising the Japan-United States-Canada North Pacific Fisheries Convention as vitally affecting the Japanese salmon fishing industry. The statement points out that the Convention "expires this year." (Editor's note: The Convention does not automatically expire, but may be terminated by any party upon one year's notification.)

The Federation also mentions the Japan-Soviet Northwest Pacific Fisheries Convention, which "expires four years hence," as vitally affecting the Japanese salmon industry.

On April 16, 1962, NIKKEIREN was to convene a meeting of its nine member associations to determine the position it should take with respect to the revision of both conventions. The Federation represents fishermen engaged in the North Pacific mothership-type salmon fishery.

NIKKEIREN feels that the present Japan-United States-Canada Fisheries Convention is an unfair obligation forced upon Japan by the United States and would like to see this Treaty terminated, and the provisional abstention line at 175° W. longitude eliminated to permit Japan to fish in the waters to the east of that line. It claims that the provisional abstention line was established by the United States not to conserve salmon resources but to keep out Japanese fishing vessels. As such, abstention based on this principle is not recognized by international law. NIKKEIREN fears that Ja-

Japan (Contd.):

pan's failure to negotiate for removal of the provisional abstention line at the expiration of the tri-partite Convention will exert an extremely adverse effect on negotiations to be held with the Russians, when the Japan-Soviet Fisheries Convention expires "four years hence," at which time the Soviet Union can certainly be expected to take advantage of Japan's acceptance of the abstention principle to press for concessions that would virtually destroy the foundation of Japan's salmon fishing industry. NIKKEIREN believes that Japan's recognition of the present abstention line and contentment with being forever shut out from the waters to the east of 175° W. longitude would mean that Japan voluntarily abandons the principle of freedom of the high seas.

In studying the revision of the tri-partite Convention, NIKKEIREN hopes to adopt a policy that strongly reflects the opinion of salmon vessel owners, and to cooperate with the Government, as well as with various interested domestic organizations, to determine the best possible course to follow.

The Suisan Keizai Shimbun adds that signatories to the tri-partite Convention are expected to open negotiations this fall concerning renewal of the Convention. The Japanese Government is now studying the position it should adopt, now that Japan is in a position where it can withdraw from the North Pacific Convention if it wishes, although the Japanese Government has not yet formulated any definite plan. Even if Japan should withdraw from the Convention, it probably would be most difficult for Japan to negotiate a new Convention which would provide for the elimination of abstention lines and would permit Japanese vessels to fish in waters east of the present abstention line, as urged by NIKKEIREN.

In concluding international agreements on fisheries, historical fishing rights are always considered. Views are being expressed that, since Japanese fishing vessels do not have records of having fished in the area east of the present abstention line during the prewar and postwar period, the Japanese Government will find it difficult to take up this problem despite the criticism that can be expected from its fishing industry.

The Japanese periodical further states that changes have taken place in fishing conditions in the Northern Waters (Okhotsk Sea, Bering Sea, and the North Pacific Ocean) since the Convention came into being; one new, unforeseen development being the entry into the fishery of trawler fleets belonging to the Soviet Union, which is not a party to the Convention. In view of this development, it is not inconceivable that the Japanese Government may press for a new Convention, and the Government is expected to vigorously assert Japan's position in that case. (Translation from news item in Japanese periodical Suisan Keizai Shimbun of April 15, 1962.)

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CANNED JACK MACKEREL EXPORTS, FY 1961:

A total of 756,406 cases of canned jack mackerel was approved for export in fiscal year 1961 (April 1961-March 1962), according to data compiled on April 10 by the Japan Canned Sardine and Saury Sales Company.

Japanese Canned Jack Mackerel Exports, FY 1961

Principal Countries or Areas of Destinations	No. of Actual Cases
Singapore (Malaya)	266,110
West Africa	205,470
Ceylon	64,962
Indonesia	48,314
New Guinea	27,565
Borneo	24,933
Middle & Near East	19,976
Europe	7,055
North, Central, & So. America	3,952

Canned jack mackerel consignments to the Canned Sardine and Saury Sales Company for export in fiscal year 1962 (April 1962-March 1963) totaled 76,867 cases, as of April 9. (Suisan Tsushin, April 11, 1962.)

* * * * *

JAPANESE FISHING COMPANY TO SEND LARGE TRAWLERS TO ATLANTIC OCEAN:

A large Japanese fishing company took delivery of its new stern trawler Oe Maru (2,525 gross tons) on April 28, 1962. Following a three-day trial fishing operation in nearby Japanese waters, the Oe Maru was scheduled to depart for the trawling grounds off northwest Africa on May 9.

The Oe Maru is the fifth stern trawler built by the Japanese fishing company. Another large 2,500-ton stern trawler belonging to that company was scheduled to be launched on May 8. Completion date for that newest vessel is late July.

Another large fishing company, which had dispatched its 1,500-ton trawler Daishin Maru No. 10 to the Atlantic Ocean off northwest Africa, planned to dispatch another 1,500-ton trawler (Daishin Maru No. 11) to those same waters in May. This second firm planned to sell its products to such European countries as Italy and Greece, as well as to ship back some of its Atlantic Ocean catch to Japan. Sales for that company are to be handled by a Japanese trading firm. (Suisan Tsushin, April 30; Shin Suisan Shimbun Sokuho, April 28, 1962.)

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FISH MEAL OPERATION OFF ANGOLA AND MOZAMBIQUE PLANNED BY JAPANESE FIRM:

A Japanese firm, which operated the 14,000-ton fish-meal factoryship Renshin Maru off the coast of Angola, Africa, in 1961 plans to conduct fish-meal operations off that coast again in 1962. The firm plans to operate one fish-meal factoryship off Angola between June and October and later send to the same area the fish-meal factoryships Renshin Maru and Kinyo Maru, when those two vessels return from the eastern Bering Sea bottomfish grounds in the fall. The Kinyo Maru is also scheduled to operate off the coast of Mozambique in the Indian Ocean.

Japan (Contd.):

Mozambique, which like Angola, is also a Portuguese colony, reportedly has extended an invitation to the Japanese firm to conduct fish-meal operations off its coast. (Suisan Tsushin, April 30, 1962.)

* * * * *

REGULATIONS FOR BOTTOMFISH FISHING IN BERING SEA:

In line with its plan to establish a licensing system for the mothership-type long-line and gill-net fishery, the Japanese Fisheries Agency officially announced on April 5, 1962, the partial revision of regulations governing mothership-type fisheries. At the same time, the Agency announced regulations governing the licensing of mothership-type long-line and gill-net fishing vessels and procedures for assignment of fishing areas.

Main deck of a Japanese factoryship operating in the Bering Sea. In background, a netload of bottom fish is being unloaded from a lighter.

Licensing Policy for Mothership-type Long-Line and Gill-Net Fishery:

1. License will be valid for a period of one year.

2. Restrictions may be imposed on the number of fishing fleets, fishing areas, fishing gear, fishing method and catch when necessary to conserve resources, regulate fishery, or implement international fishery treaties.

3. Provisions of Item 2 may not apply to special undertakings, such as surveys and investigations.

4. Other conditions and restrictions may be added as necessary.

Procedures for Regulating Mothership-type Bottom-Trawl, Long-Line and Gill-Net Fisheries in Bering Sea:

1. Fishing areas shall be divided into Areas A, B, C, D, E, and F, as in 1961.

2. Based on this area division, fishing areas shall be assigned as follows:

a. Mothership-type bottom trawl fishery:

(1) Fish meal factoryship - Areas D and E.

(2) Fish meal-oil factoryship - Area F.

(3) Freezer factoryship - Areas A, B, C, D, and F. Factoryships which previously operated in Area E may be licensed to operate in Areas D and E.

b. Mothership-type long-line and gill-net fisheries. Mothership fleets operating long lines and gill nets are authorized to operate in Areas A, B, and C. However, mothership fleets operating bottom trawls in combination with either long lines or gill nets may be authorized to operate in Areas A, B, C, D, and F.

3. Composition of the fishing fleets shall be as follows:

a. Generally, the number of catcher vessels assigned to motherships shall be on the same scale as last year.

b. The number of catcher vessels which exclusively fish either long lines or gill nets and which are assigned to motherships may exceed the limit set in Item "a" only when the additional vessels to be employed are salmon vessels, which have been retired from the salmon fishery.

c. Portable vessels may be carried by motherships at the ratio of two portable vessels for each catcher vessel assigned to a mothership.

d. Generally, only long-line and gill-net catcher vessels with previous fishing records or salmon vessels withdrawn from the salmon fishery shall be granted licenses.

Area and catch restrictions shall be the same as those enforced in 1961, and are as follows:

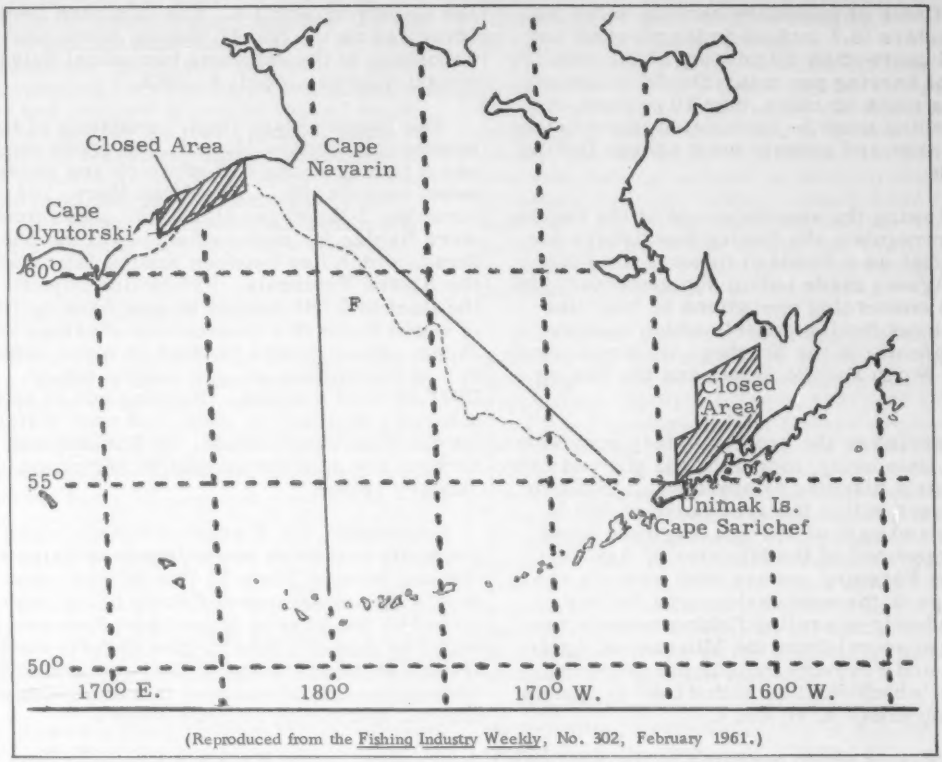
Area restrictions: (See map.)

Catch restrictions:

1. Incidental catches of halibut (except those taken in areas to the west of 175° W. longitude) and salmon shall be released immediately upon capture.

2. Operations conducted for the purpose of catching king crabs shall be prohibited. When incidental catches of king crabs are high, fishing vessels will move away from those areas.

Japan (Contd.):



(Reproduced from the Fishing Industry Weekly, No. 302, February 1961.)

Bering Sea Fishing Areas:

Area A: Area between 170° E. longitude and 175° E. longitude.
Area B: Area between 175° E. longitude and 180° longitude.
Area C: Area between 180° longitude and 175° W. longitude.
Area D: Area between 175° W. longitude and 170° W. longitude.
Area E: Area east of 170° W. longitude.
Area F: Triangular area formed by the line drawn from Cape Navarin south to Aleutian Islands along 180°, then east along Aleutian chain to Cape Sarichef, Unimak Island, and back to Cape Navarin.

Area Restrictions:

Bottom trawling will be prohibited in the following areas.

Bristol Bay: Area formed by the line connecting the points 56° N.-164° W., 56°20' N.-163° W., 57°10' N.-163° W., and 58°10' N.-160° W., and lying between 160° W. longitude and 164° W. longitude and the Alaska Peninsula.

Russian Coast: Area lying between the Russian coast and the line drawn from Cape Olyutorski and Cape Navarin and between meridians 173° E. and 177° E.

Japan (Contd.):

3. Catch of immature herring under 21 centimeters (8.3 inches) in length shall not exceed more than 10 percent of the total catch of herring per trip. Should immature herring make up more than 10 percent of a trip, fishing must be terminated immediately in the area and vessels must change fishing grounds.

Following the announcement of the regulations to regulate the Bering Sea fishery for bottomfish as a licensed fishery, the Fisheries Agency made public supplementary provisions concerning operations of long-line and gill-net fishing vessels which operate independently in the Northern Waters (including the North Pacific Ocean and the Bering Sea).

According to the supplementary provisions, for the time being, long-line and gill-net fishing vessels planning to operate in the Northern Waters within the area north of 50° N. latitude and east of 170° E. longitude must obtain approval of the Minister of Agriculture and Forestry, unless such vessels are to engage in the mothership-type fishery. Independently-operating fishing vessels requiring approval from the Minister of Agriculture and Forestry include the following vessels, which shall be authorized to operate in fishing areas A, B, and C:

1. Vessels which operated in the Northern Waters in 1961, as well as vessels constructed to replace them.

2. Catcher vessels which previously engaged in the mothership-type fishery which, after replacement of those vessels, seek to operate as independent vessels.

3. Survey and research vessels, as well as training vessels.

The Fisheries Agency is presently studying regulations governing activities of the large stern trawlers operating independently in the Northern Waters and reportedly hopes to control their operations as well. (Suisan Tsushin and Shin Suisan Shimbun Sokuho, Japanese fishery periodicals, April 6, 1962.)

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HERRING FISHING IN SHELIKOF STRAIT, ALASKA:

A Japanese fishing fleet began early in April 1962 to fish for herring in the waters south of the Alaska Peninsula. This information was made public by the Japanese Fisheries Agency on April 4. The Japanese fleet is identified as the No. 31 Banshu Maru fleet, according to the Japanese periodical Suisan Keizai Shimbun, April 5, 1962.

The Banshu Maru fleet, consisting of the mothership Banshu Maru (1,500 gross tons) and 4 fishing vessels, 2 of which are purse-seine vessels (No. 1 Hayabusa Maru, 104 gross tons; No. 2 Hayabusa Maru, 180 gross tons), were fishing for mature herring in the Shelikof Strait, which lies between Kodiak Island and the Alaska Peninsula. Production objective of the fleet is 3,000 metric tons of herring roe, of which there is a tremendous shortage in Japan. Price of this product in Japan is quoted at 1 to 1.5 million yen per metric ton or US$1.26-1.85 a pound. (Herring roe is considered a delicacy in Japan and used mainly for the New Year's trade. In Los Angeles, herring roe sold for around $6 per pound in January 1962.)

Reportedly, the Fisheries Agency plans to gradually authorize other Japanese firms to operate herring fleets in this general area should the experimental fishing being conducted by the Banshu Maru fleet prove successful. The Agency plans to give careful consideration to the condition of fish stocks and to international developments in authorizing additional operations in those waters.

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EXPORT QUOTAS RECOMMENDED FOR CANNED FISHERY PRODUCTS, FY 1962:

The Japanese Ministry of International Trade and Industry (MITI) held a meeting with the Canned Foods Export Committee of the Agricultural and Marine Products Export Council on March 20 to study the FY 1962 (April 1, 1962-March 31, 1963) canned foods export target, and tentatively set the export goal at 15.3 million cases (US$157.3 million) as compared to the estimate of 14.2 million cases ($143.2) for the previous fiscal year. The export target is not final and was probably adjusted somewhat during the meeting of the Agricultural Products Export Promotion Council scheduled about April 17. While the export goal will basically remain unchanged, the Canned Foods Export Committee is expected to recommend some changes, according to the March 26, 1962, issue of the Japanese periodical Shin Suisan Shimbun. The Committee presented the following recommendations to MITI:

Japan (Contd.):

1. In an effort to ensure a supply of raw materials for canning purposes, the Government should: (a) Exercise greater degree of administrative leadership to promote collective bargaining between suppliers of raw materials and packers of export canned foods. (b) Revise the law so that export income exemption can be extended to cover suppliers of raw materials. (c) Study ways and means of securing a fish supply for packing purposes. (d) Encourage packers to cultivate crops for canning purposes on a contract basis.

2. Can prices be reduced.

3. Publicity activities in foreign countries be stepped up and Government subsidy increased to cover such expenses.

Export Quotas Recommended by the Japanese Canned Foods Export Committee

Canned Product	Value		Quantity	
	FY 1962	FY 1961 1/	FY 1962	FY 1961 1/
	. .(In US$1,000). .		. .(In 1,000 Cases). .	
Tuna	32,068	30,734	3,940	3,888
Salmon	54,967	50,263	1,810	1,639
Crab	12,950	12,167	528	513
Sardine	5,040	2,638	720	343
Saury	5,865	2,889	950	537
Mackerel . . .	5,097	4,256	800	613
Shellfish . . .	10,399	10,407	1,360	1,629

1/Figures for FY 1961 are estimates since the fiscal year extends to March 31, 1962.

4. Steps be taken to forestall movements in foreign countries aimed at restricting imports.

5. Loans with which to pay for shipment of goods be granted to joint sales companies under the same loan condition applicable to buyers.

6. Goods on which substantially high tariffs would be imposed through application of the EEC common tariff not be exported.

7. The Government conduct negotiations with the United States for reducing United States import duties on canned tuna in oil from 35 percent to 12.5 percent ad valorem, and on canned crab from 22.5 percent to 10 percent.

8. The Government cooperate in negotiating with Southeast Asian countries, particularly Indonesia and Egypt, to expand their import quotas of canned sardine, canned saury, and canned mackerel.

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Mexico

NATIONAL CONSULTATIVE FISHERY COMMISSION ANNOUNCES FISHERY DEVELOPMENT PROGRAM:

The President of the Mexican National Consultative Fishery Commission, on April 6, 1962, announced his fishery development program to the press. This program, as reported, has six major objectives: (1) Constructing fishing vessels in Mexican shipyards; (2) acquiring large fishing vessels from foreign sources; (3) modernizing marine fishing methods; (4) installing canneries; (5) industrializing marine products; (6) elevating the standard of living of the fishermen.

During the course of arriving at these objectives, the following were expected: (1) Doubling of the present fish catch which was worth about US$61 million in 1961; (2) tripling local consumption of fishery products; (3) increasing revenue from the fisheries which, in 1961, from severance and export taxes yielded about $4 million; (4) increasing fishery exports whose 1961 value was about $39 million; (5) granting of credits for buying vessels, nets, refrigeration equipment, and industrial plants; (6) creating a distributing organization for fishery products in the consuming centers of Mexico; (7) doubling of private investment in the fisheries which now amounts to about $80 million.

The Commission report was scheduled to be submitted to the Secretary of Industry and Commerce for approval. (United States Embassy, Mexico, report of April 11, 1962.)

Nigeria

TARIFF ON FISH IMPORTS RAISED:

On March 30, 1962, Nigeria announced a drastic tariff increase on fish and other food imports to protect its domestic industries, as well as to increase revenues to enable Nigeria to carry out its Six-Year Economic Development Plan (April 1962-March 1968). According to a Nigerian official trade bulletin dated April 6, the import duty on fresh fish and other food products has been raised to 50 percent ad valorem from the previous 20 percent. (Shin Suisan Shimbun Sokuho, April 7, 1962.)

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FISHERIES RESEARCH VESSEL:

Nigeria has acquired a fisheries research vessel built by a British shipyard. Built for

Nigeria (Contd.):

the Nigerian Federal Fisheries, the vessel is 70 feet over-all, 62 feet 3 inches between perpendiculars, with a moulded breadth of 19 feet and depth of 10 feet 6 inches.

Accommodation is provided for a crew of 15 and for two scientists. Fish hold capacity is 1,000 cu. ft. and fuel oil capacity 12 tons.

Main propulsion units are two Diesels each of which develop 120 b.h.p. at 1,000 r.p.m. and drive two 45-inch diameter manganese bronze propellers to give the vessel a speed of 9¼ knots.

Deck machinery includes a belt-driven winch with a capacity for 300 fathoms of 2-inch wire; a hydrographic survey winch; a 1½-ton derrick for handling the stern-trawl gear; and a 1-ton derrick for hoisting the auxiliary boat. The 15-foot auxiliary boat is carried on chocks immediately aft of the wheelhouse. Also, 10-man inflatable liferafts are carried on either side of it. (The Fishing News, British periodical, March 23, 1962.)

Pakistan

JAPAN TO SEND FISHERY SURVEY TEAM TO PAKISTAN:

The Japanese Overseas Fisheries Cooperative Association was reportedly planning to send a fisheries survey team to Pakistan in mid-April 1962 at the request of the Pakistan Industrial Development Corporation, a Government agency. The request was originally made to the Japan Plant Cooperative Association, but in view of Pakistan's earnest desire to develop its fisheries jointly with Japan, a decision was made to dispatch a fishery survey team. The consultant team, consisting of three members, was to examine shore facilities and conduct coastal and offshore water surveys for approximately 40 days. If the survey proves promising, Pakistan is expected to seek Japanese assistance in developing its fishing industry. (Shin Suisan Shimbun Sokuho, April 7, 1962.)

Peru

FISH OIL PRODUCTION AND EXPORTS REACH NEW HIGH IN 1961:

Peruvian fish oil production in 1961, at the preliminary figure of 121,253 short tons, reached a new high and was nearly 2-1/2 times the 1960 level of production.

Most of Peru's fish oil production is exported as crude or inedible oil and the rapid rise in production was reflected in a similar increase in exports. Total exports of fish oil as registered by the Callao Customhouse reached a record 112,772 tons in 1961, almost three times the exports in 1960.

Data on 1961 exports by destination are not available. Of the total fish oil exported in 1960, however, about 43 percent went to the Netherlands, 30 percent to Western Germany, 21 percent to Denmark, and the remaining 6 percent to other West European countries.

The export price of fish oil averaged S/2.84 per kilogram in 1961 (about 5 U.S. cents per lb.), S/ 2.83 per kg. in 1960 (about 5 cents per lb.), and S/ 2.61 per kg. in 1959 (about 4 cents per lb.).

The apparent total domestic consumption increased from 8,952 tons in 1959 to 9,370 tons in 1961. Of those totals, 3,086 tons in 1959 and 3,638 tons in 1961 were consumed in edible form for making margarine and shortening.

Peru's Fish Oil Supply and Distribution, 1959-1961

Item	1961 1/	1960 1/	1959 2/
	(Short Tons)		
Supply:			
Stocks January 1	6,189	686	2,439
Production	121,253	53,143	26,120
Total supply	127,442	53,829	28,559
Distribution:			
Exports	112,772	38,584	18,921
Apparent consumption	9,370	9,056	8,952
Stocks December 31	5,300	6,189	686
Total distribution	127,442	53,829	28,559

1/Preliminary.
2/Revised.

Production and exports of fish oil are expected to increase sharply in 1962. The domestic use of fish oil for edible purposes is expected to show further increases.

Peruvian fish oil production and exports increased in the summer-fall of 1961. An incentive to exports was an administrative action by the Government to change the antiquated basis for determining the export tax. It was formerly based upon unrealistically low production costs resulting in an export duty which precluded Peruvian fish oil producers from competing effectively in world markets. Increased production was largely due to better use of existing equipment, although there were some additional installations of machinery.

Domestic consumption of fish oil to supplement edible oil supplies from other sources is increasing. Local edible oil processing mills were paying better prices in October 1961 than could be obtained abroad for Peruvian fish oil. The foreign price had been from 10 to 15 percent above the local price, but that was not the case in October 1961.

There is at present no marketing organization for fish oil, although the possibility of establishing such an organization appeared to be under consideration as of October 1961. If it should be established, it might be handled by the Consorcio Pesquero del Peru.

Peru's exports of fish oil for the first six months of 196' totaled 54,690 metric tons, valued at 153.9 million soles

Peru (Contd.):

(US$5.7 million), compared with exports for the same period of 1960 of 13,130 metric tons, valued at $33.2 million soles ($1.4 million).

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EXPORTS OF MARINE PRODUCTS, 1960-61:

Exports of principal marine products by Peru during 1961 were substantially greater than in 1960. Meal and oil exports were up considerably. (United States Embassy, Lima, report of March 30, 1962.)

Peruvian Exports of Principal Marine Products

Marine Products	October-December 1961			1961		
	Qty.	Value 1/		Qty.	Value	
	Metric Tons	Million Soles	US$ 1,000	Metric Tons	Million Soles	US$ 1,000
Fish meal	160,208	360.4	13,443	708,366	1,328.6	49,556
Fish (frozen, canned, etc.)	10,959	58.8	2,193	39,449	255.0	9,511
Fish oil	26,018	76.1	2,838	102,306	290.8	10,847
Sperm oil	2,628	9.6	358	9,063	33.7	1,257
Fertilizer (guano)	10,553	27.6	1,029	15,861	41.6	1,552
Whale meal	1,050	1.3	48	5,147	7.0	261

1/ F.o.b. values converted at rate of 26.81 soles equal US$1.

Spain

FISH CANNING INDUSTRY TRENDS:

The first quarter of 1962 was a period of seasonally reduced activity for the Spanish fish-canning industry as is normal between the end of one sardine season in December and the beginning of the next in April. For lack of canning species--e.g., sardines, bonito--the factories concentrated on specialities prepared in small quantities, such as shellfish, principally to keep the regular plant personnel employed.

However, exports of canned fish were maintained at a high level, following a trend begun in 1961. From the Vigo zone alone exports were: 915 metric tons valued at US$607,156 between January 20-February 20, 1962; 975 tons at US$635,397 between November 20-December 20, 1961, and 924 tons at US$620,651 between September 20-October 20, 1961. While there are no comparable figures available, it is estimated that exports in January-February this year were 50 percent more than those in the same two-months period of 1961 and, moreover, they have maintained the high level of the second half of the year when exports are always higher because of the backlog accumulated during the peak of the packing season.

The new metal can factory is well under way, although its opening scheduled for February 1962 has been postponed for some months. The original investment totals 44,000,000 pesetas (US$733,000) with 55 percent belonging to three Galician groups and 45 percent to a French firm which has made arrangements for technical advice with a large United States can manufacturer.

The installations consist of a mechanical shop and a container mill equipped with 3 automatic belts for handling 225 cans per minute, and 5 automatic belts, plus related machinery. Production at the outset is estimated at 80 million units per year with expansion plans for two more belts, bringing the total annual production to 150 million units. Number of employees will total about 500 persons, between administrative, technical, and plant personnel. (United States Consulate, Vigo, report of April 5, 1962.)

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VIGO FISHERIES TRENDS, JANUARY-FEBRUARY 1962:

Fish unloaded at Vigo port during January 1962 amounted to 3,453 metric tons with an ex-vessel value of 50,718,579 pesetas (US$845,000) as compared with 3,679 tons at 49,849,117 pesetas ($831,000) in January 1961. In February 3,751 tons were unloaded valued at 44,373,811 pesetas ($740,000) against 3,645 tons at 48,394,323 pesetas ($807,000) in February 1961. Sardines were very scarce, with only 38 tons landed this January as against 293 tons in January 1961. This is the usual seasonal low point for this species. The seasonal decline began in October 1961 when 5,097 tons were landed, and landings dropped to 2,152 tons in November, and 78 tons in December 1961. Due to the great abundance of sardines at the peak of the season (May-September) during the past three years (1959-1961), the customary conservation fishing ban lasting from February 15 to April 15 has been lifted on a trial basis.

In the middle of January, ten fishing boats set out from Vigo for Newfoundland for the cod fishery season. They plan to use the system of "dragging in pairs" which has

Spain (Contd.):

given good results in recent years. The vessels, with a total carrying capacity of about 3,000 tons of wet salted cod, will return to port in late April or early May.

The cod fishery firm in Vigo has suspended its operations, which have turned out to be unprofitable in competition with the more modern plant in La Coruna. The four cod trawlers which comprised its fleet have been sold to a firm in Huelva for 40,000,000 pesetas ($667,000). Of this amount, about 10,000,000 pesetas ($167,000) will go to pay up naval credits on the vessels, over a period of 10 years. After repairs in Vigo, it is understood that the vessels will take part in the Newfoundland cod fishery or in fishing off West Africa where the new owners have other vessels fishing. The Vigo cod fishery facilities are reportedly to be sold to a firm in La Coruna or El Ferrol, each of which has its own cod fleet.

A Vigo fishery firm has purchased the vessel Habana for conversion to the first Spanish floating fishery factoryship. It will be used to transport catches of its fleet operating in South Africa and along the coast of South America. The same company's freezer-equipped vessel Andrade returned to Vigo from South African waters, unloading about 250 tons of frozen hake. At present the vessels Lemos and the Pambre (the third of a planned fleet of six freezer vessels to be built) are fishing in South African waters which are considered more fruitful and economical.

The new Law for the Renovation of the Spanish Fishing Fleet grants a concession of 4 billion pesetas ($66.7 million) for the modernization of the fleet between 1962 and 1971, distributed as follows: 400 million pesetas ($6.7 million) each for the years 1962, 1966, 1967, and 1968; 500 million pesetas ($8.3 million) for 1963, 1964, and 1965; and 300 million pesetas ($5.0 million) for 1969, 1970, and 1971. Credits will be granted for 80 percent of the cost of building at an annual interest of 4 percent with amortization terms of 20 years for those using steel hulls and 12 years for wood. Preferential treatment will be given to those submitting plans with modern installations and equipment. The law has been well received among fishing circles, even though some believe that the allotments for the initial period should be larger in order to give greater impetus to building. (United States Consulate, Vigo, report of April 5, 1962.)

Tahiti

SECOND APPLICATION FOR TUNA BASE SUBMITTED TO JAPANESE FISHERIES AGENCY:

Japanese press reports indicate that considerable attention has been focused on developing new tuna bases in the South Pacific Ocean area. An article in the Suisan Tsushin of April 25, 1962, stated that a large Japanese fishing company and a large United States tuna packer are planning to establish a tuna base in Tahiti together with a French firm, and that the Japanese firm had already submitted a petition to the Japanese Fisheries Agency to seek approval of the project.

According to the petition, the three companies, which would share equally in the investment, would construct a 2,000-ton capacity cold-storage plant. Eventually, from 35 to 50 tuna vessels of under 200 tons gross would be contracted to deliver their catches to the base, but initially about 25 vessels would be employed in the first year of operation. Tuna landed at the base are to be frozen and exported to the United States and France, as well as brought back to Japan.

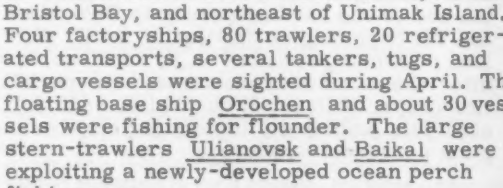
The Japanese firm plans to assign to the Tahiti base tuna vessels which already have valid tuna licenses but would give preference to the utilization of fishing vessels displaced from the salmon fishery this year.

The application submitted by the Japanese firm to build a joint tuna base at Tahiti is the second one of its kind. In mid-March, a Japanese trading company submitted an application to the Fisheries Agency to establish a tuna base at Tahiti together with another large United States tuna packer and a French firm. The scale of that project appears to be somewhat smaller, calling for the construction of a 1,100-ton capacity cold-storage plant and the utilization of a smaller tuna fleet. (Suisan Tsushin, April 25, and March 15, 1962.)

U.S.S.R.

SOVIET FISHING ACTIVITIES IN BERING SEA, MARCH 1962:

About 150 to 200 Soviet vessels were fishing in the Bering Sea for flounder, ocean perch, and herring as of early April 1962. Over 100 of those vessels were operating in the area north of the Pribilof Islands, in outer Bristol Bay, and northeast of Unimak Island. Four factoryships, 80 trawlers, 20 refrigerated transports, several tankers, tugs, and cargo vessels were sighted during April. The floating base ship Orochen and about 30 vessels were fishing for flounder. The large stern-trawlers Ulianovsk and Baikal were exploiting a newly-developed ocean perch fishing area.



Typical Russian factoryship operating in the Bering Sea.

U. S. S. R. (Contd.):

Soviet winter herring fishing in the Bering Sea was concluded early in April with catches exceeding the 1962 quarterly plan by 50 percent. When the herring dispersed for spawning, the Soviet fishing fleet shifted to ocean perch. The feasibility of ocean perch fishing was discovered during the recent exploratory fishing of the medium-size trawler Karaga. (Unpublished sources.)

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SOVIETS PURCHASE MORE FROZEN FISH FROM ICELAND:

The U.S.S.R. has signed a trade agreement with Iceland for the purchase of 18,000 metric tons of frozen fillets in 1962, of which 13,000 tons will be cod, and 5,000 tons ocean perch or other groundfish. This will be a sizable increase over the 7,500 tons of Icelandic frozen fish imported by the U.S.S.R. in 1961.

The Soviets agreed to increase the price for cod fillets to Ł145 per ton (18.4 U. S. cents a pound) from the Ł128 per ton (16.2 cents a pound) in 1960. (United States Embassy, Reykjavik, March 15, 1962.)

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SOVIET FISHING ON GEORGES BANK IN NORTH ATLANTIC, MARCH-APRIL 1962:

By mid-March 1962, the Soviet fishing fleet, now in its second year of operation on Georges Bank, numbered about 50 vessels. Among these were 17 large stern-trawlers of the Pushkin (2,450-gross-tons each) and Leskov (2,890 tons each) classes. About 10 medium trawlers of the Okean class (500 gross tons each) were also sighted. The rest of the fleet was composed of small trawlers (250-gross-ton SRT's) and supply tenders. Sizable hauls of herring were taken in a large area 60 to 180 miles east of Cape Cod. Some groundfish was also caught.

By the beginning of April 1962, the picture changed rapidly. Many new smaller vessels have arrived in the area, while several large stern-trawlers left. Over 100 Soviet vessels as of mid-April 1962 were fishing on Georges Bank, thus approaching the peak number of Soviet vessels attained in late 1961 when an estimated 110 vessels were in the area. Last year at the same time Soviet fishing vessels had not yet arrived on Georges Bank. (Unpublished sources.)

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MURMANSK IS PRINCIPAL FISHING PORT AND PROCESSING CENTER:

The Murmansk Fish Combine has grown from a small operation in the 1930's to handle about 700,000 metric tons, or 20 percent of the 1960 U.S.S.R. catch. From this catch, the Combine produced 300,000 tons of frozen, salted, and smoked fish, plus 15 million units of canned fish. Only the canning operation is substantially mechanized; filleting, weighing, and other work is still done by hand. Further mechanization is planned.

The 1965 goal is 340,000 to 350,000 tons of fishery products (excluding canned fish). For supplies of fresh and frozen fish, the trend is towards relying more on factory trawlers. The Combine sells its products to a state marketing organization (RYSBYT) for distribution locally and to various parts of the U.S.S.R. (Unpublished sources.)

* * * * *

OCEANOGRAPHIC RESEARCH ACTIVITIES:

The research vessel Voieikov returned to Vladivostok in March 1962 after a 3-months voyage to the North and Central Pacific. During the Voieikov's seventh expeditionary trip, hydrometeorological conditions in the Pacific Ocean were studied. The 350-ton Soviet oceanographic vessel Akademik Vavilov returned to Odessa from its 4-months voyage to the Mediterranean Sea. The purpose of this expedition was to study biological conditions in the Mediterranean Sea during the winter. Eleven scientists participated in the expedition. (Unpublished sources).

* * * * *

TUNA EXPLORATORY FISHING SURVEY IN INDIAN OCEAN ENDED:

The Soviet tuna fishing clipper Nora and the fishing vessel Ekvator returned late in 1961 from a five-months exploratory fishing trip to the Indian Ocean. This expedition, which was organized by the Far East Fishing Administration, caught 140 metric tons of tuna near the coasts of Ceylon, Maldive Islands, Chagos Archipelago, and Sumatra. Analysis of the results indicates good prospects for tuna fishing in the central Indian Ocean, confirming data obtained by the reconnaissance ship Vitiaz on another voyage. A similar expedition of two vessels was exploring in the Atlantic Ocean off Paramaribo, Brazil, at the end of 1961.

This year the Far Eastern Fishing Administration plans to start fishing commer-

U. S. S. R. (Contd.):

cially for tuna in the South Pacific. The Soviet Seven-Year Plan calls for 20,000 metric tons of tuna landings in 1965. (Rybnoe Khoziaistvo, November 1961, and other sources.)

* * * * *

NEW VESSELS FOR SOVIET FAR EAST FISHERIES:

During the latter part of March and early April 1962, five large ships were completed for delivery to the Soviet Far East fishing fleet which fishes in the Bering Sea and Bristol Bay.

Arman, a giant mothership (17,140 full-load displacement tons) of the B-62 Severodvinsk class was built in Poland. On its voyage to Vladivostok, the vessel was to tow small floating docks.

Barabash, a freezer trawler of the Maiakovskii class, was completed in Nikolaev on the Black Sea. This 3,170-gross-ton and 279-foot vessel was proceeding to Vladivostok with its crew of 102.

The Evron and Khanke, two refrigerated vessels of the Bratsk class, were launched in Stralsund (East Germany). The 2,495-gross-ton vessels are 269 feet long and 43 feet wide, have an average speed of 11 knots, and are equipped with modern radio-navigation equipment.

The 5,500-gross-ton refrigerated transport Eggersheld of the Sevastopol class was on its maiden voyage from Leningrad to Vladivostok. This new vessel was making the trip via the Antarctic in order to transport products of Soviet whaling operations. (Unpublished sources.)

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PRODUCTION OF CANNED FISH INCREASING:

In 1961, Soviet production of canned fish was 760 million standard cans (350 grams or about 12.3 ounces each), which exceeded the 1961 plan by 28.4 million cans. The 1961 production compares favorably with outputs of 632 million cans in 1958 and of 700 million cans in 1959. (Rybnoe Khoziaistvo, January 1962.)

United Kingdom

FISHERY LOANS INTEREST RATES REVISED:

The British White Fish Authority announced that, as a result of a change in the rates of interest charged to them by the Treasury, their own rates of interest on loans made as from April 7, 1962, will be as follows:

Fishing vessels of not more than 140 feet, new engines, nets and gear: on loans for not more than five years, $5\frac{5}{8}$ percent, no change; on loans for more than five years, but not more than 10 years, 6 percent, no change; on loans for more than 10 years, but not more than 15 years, $6\frac{7}{8}$ percent, no change; on loans for more than 15 years, but not more than 20 years, $6\frac{7}{8}$ percent, no change.

Processing plants: on loans for not more than 15 years, $7\frac{1}{2}$ percent, decrease $\frac{1}{8}$ percent; on loans for more than 15 years, but not more than 20 years, $7\frac{1}{2}$ percent, no change.

The rates on loans made before April 7 are unchanged. (Fish Trades Gazette, April 21, 1962.)

FEDERAL ACTIONS

Department of Commerce

COAST AND GEODETIC SURVEY

SHIPS OF TOMORROW MAY DEMAND A NEW-LOOK IN NAVIGATIONAL CHARTS:

With the rapid advancement of marine electronics, and the modern design of ships, involving new concepts of speed and propulsion, the U.S. Coast and Geodetic Survey (C&GS) has awarded a $22,000 contract for a study to determine whether or not nautical charts are meeting the needs of the modern mariner, it was announced on March 26, 1962.

The contract, one of the first projects negotiated by the Survey's Office of Research and Development, was awarded to Reed Research, Inc. of Washington, D. C. It is expected to be completed within 6 months.

"We believe that our nautical charts are the best our profession can produce and are considered the world's standard," commented the C&GS Director. "But what about tomorrow with the increasing tempo of development of scientific navigational instruments and systems such as satellite navigation. We cannot afford to become complacent in the face of today's dynamic progress."

The study will be approached in two phases. The first will be a survey of chart-users, both present and future, to determine their ultimate needs in nautical charts. The second phase will be an examination of the current state of the nautical charting art, including a literature survey, personal contacts, and discussion with organizations and individuals faced with similar problems in related fields. A major part of the work in phase two will be an attempt to ascertain the type and scope of chart detail needed by chart users in the years to come.

The information assembled in the study will be invaluable in determining if the present long-range program for chart modernization is compatible with what the chart-user wants. A thirty-year program to modernize the 830 published nautical charts was begun in 1957. An accelerated program would provide for the compilation, reconstruction, or maintenance of 10-18 additional charts in fiscal year 1964.

Although the chart user will be asked to suggest basic changes in the nautical chart format, the Coast and Geodetic Survey has an obligation to maintain certain engineering and professional standards that cannot be subjected to public poll. The chart is an instrument on which navigation problems are to be developed and solved, and such standards as type of projection, precise positioning, and interpretation of detail will continue to be the cartographers responsibility.

What the chart user will be asked, however, is what topographic detail should be depicted on the chart? Should roads leading to marinas and docks be shown? Should charts of similar scale be "butted" together rather than overlapped, as they are now? Can these charts be just as useful if they are printed on lightweight paper, and folded?

Looking into the future, some chart-makers believe that the traditional "sounding" may eventually be replaced on the chart with "bottom contours." Ships equipped with electronic depth recording equipment, for example, can navigate "by ear," using "bottom contours."

Reconstruction and maintenance of nautical charts is a continuous process--and a costly one. Coastal features are constantly being altered by the wind, tides, and other natural forces, as well as the work of man. The destructive Atlantic coast storms in March 1962, for example, may require that as many as 80 C&GS nautical charts be revised to show changes wrought by tides and waves.

Department of Health, Education, and Welfare

FOOD AND DRUG ADMINISTRATION

PUBLIC HEARING ON STANDARD OF IDENTITY FOR FISH FLOUR:

A public hearing on a definition and standard of identity for fish flour or fish protein concentrate was announced by the U. S. Food and Drug Administration in the Federal Register of April 28, 1962. The hearing will start at 10 a.m. (E.D.T.), June 18, 1962, in the North Building, Department of Health, Education, and Welfare, Washington, D. C. A prehearing conference of interested parties will be held at 10 a.m. on June 12.

The hearing will cover points in a regulation published last January 25 which would have required that fish flour be made from edible, cleaned fish after discarding the heads, tails, fins, viscera and intestinal contents. The January 25 order has been stayed pending the outcome of the hearing.

Persons who filed formal objections and requested the hearing were: Senator Paul H. Douglas of Illinois; Harold Putnam, on behalf of VioBin Corporation, Monticello, Ill.; Vincent A. Kleinfeld of Bernstein, and Alper, on behalf of Gulf Menhaden Co., Cameron, La.; the members of Industrial Products Division, National Fisheries Institute, Inc., Washington, D. C.; the members of Virginia Fishermen's Association, Reedville, Va.; and Fish Products Co., Lewes, Del.

Following are the issues on which testimony will be taken at the hearing:

1. Whether the inclusion of heads, tails, fins, viscera, and intestinal contents of fish would result in a finished product that is filthy or otherwise unfit for food as defined in section 402(a) (3) of the Federal Food, Drug, and Cosmetic Act.

2. Whether it would promote honesty and fair dealing in the interest of consumers to promulgate a standard of identity for fish flour prepared from whole fish, including heads, tails, fins, viscera, and intestinal contents.

3. Whether the restriction of raw material for fish flour to "edible species of fish" was proper.

4. What processing steps are required for manufacturing fish flour that is defatted, odorless, and tasteless, and has the necessary storage stability and bacterial count, and whether the process employs any food additive that is unsafe (whether or not heads, tails, viscera, and intestinal contents are included).

5. What name is proper (whether or not heads, tails, fins, viscera, and intestinal contents are included).

6. Whether the requirement for a minimum of 70 percent protein is proper, or whether a lower figure should be set.

7. Whether the requirement of a maximum of 6 percent moisture is proper, or whether a higher figure should be set.

8. Whether the standard of identity as issued on January 25, 1962, will promote honesty and fair dealing in the interest of consumers.

The notice of hearing said an examiner will be appointed to conduct the hearing and the appointment will be announced in the Federal Register at a future date. After the hearing, the examiner is required to file a report together with suggested findings, conclusions and order, and to certify the entire record of the proceedings to the Commissioner of Food and Drugs for action.

Department of the Interior

DEPARTMENT URGES APPROVAL FOR FISHING VESSEL DISASTER LOANS:

Passage of a Congressional measure to provide disaster loans to fishing vessel owners and operators has been urged by the U.S. Department of the Interior in a letter to Chairman Herbert C. Bonner of the House Committee on Merchant Marine and Fisheries.

The bill would, in effect, extend the principle established for agricultural disaster aid to the fish food production industry. The Secretary of the Interior would be authorized to make loans to fishing vessel owners and operators when he finds that fishery production failure or resource disaster arising from natural causes has created a need for credit not available from commercial sources.

Assistant Secretary of the Interior Frank P. Briggs suggested several amendments to pending legislation--H. R. 9375--to assure judicious use of the authority granted.

One of the suggested amendments is to change the procedure set forth in this bill for financing the proposal. The Department recommended that the present fishery loan authority in section 4 of the Fish and Wildlife Act of 1956 be amended to include the provisions of the proposal. No increases in appropriation authorization is believed necessary to carry out the purposes of the bill, Assistant Secretary Briggs' letter said. He added that such a step would promote uniformity in present fishery loan procedures and would avoid transferring money from a Department of Agriculture revolving fund, as the pending legislation provides.

Another change suggested by the Department of the Interior would limit eligibility for loans to those adversely affected by a resource disaster estimated to continue no longer than 18 months. The Assistant Secretary's letter also stated that production failure or resource disaster must be temporary and that restoration of the fishery resource be foreseeable and impending. He said he did not believe that the program should be used to "shore-up" financial difficulties of fishermen whose income depend upon an eroding or fading resource and that an attempt to so use it would be an injustice both to the fishermen and the national economy.

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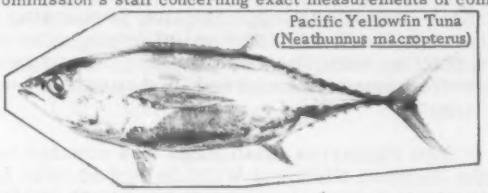
TROPICAL PACIFIC YELLOWFIN TUNA CONSERVATION LEGISLATION ENDORSED:

Endorsement of proposed Federal legislation to regulate the yellowfin tuna fishery in the eastern tropical Pacific Ocean was announced on May 1, 1962, by the Department of the Interior.

A pending Congressional bill (S. 2568) to amend the Tuna Convention Act of 1950 to include conservation regulations is based on the recommendations of the Inter-American Tropical Tuna Commission, an investigative body established by the Tuna Convention of which the United States, Costa Rica, Panama, and Ecuador are members.

Scientific evidence collected over the past decade by the Commission's staff concerning exact measurements of commercial yellowfin tuna catches in relation to the abundance of the fishery stocks, their natural reproduction, and mortality rates indicates that unless the fishery is regulated at once the yield of yellowfin tuna from the eastern tropical Pacific may be seriously reduced.



Pacific Yellowfin Tuna
(Neathunnus macropterus)

In a letter to Senator Warren G. Magnuson, Chairman of the Senate Committee on Commerce, Assistant Secretary of the Interior Frank P. Briggs stated, "We believe that our Government should cooperate fully with the Commission's recommendations. If the Commission's recommendations are carried out, our domestic fishery as well as the fishery of the other participants to the convention will benefit materially by preventing damage to the resource and the maintenance of maximum sustained yield."

The Department's Fish and Wildlife Service said that in 1950 the yellowfin tuna seemed to be an inexhaustible resource and this might have held true for many years except for recent developments in fishing techniques and gear.

In the eastern tropical Pacific Ocean, Bureau of Commercial Fisheries marine biologists explain, oceanic factors make purse seining possible, and the advent of nylon fishing nets and mechanized power blocks to handle the nets made purse seining practicable, greatly increasing efficiency. The old tuna bait boats, which took three or four months to bring home a load of fish, have been replaced or converted to purse seiners which often can bring home a payload in 30 days. The result was a total catch last year of about 120,000 tons of yellowfin tuna--an amount estimated to be more than the maximum sustainable yield. Tuna Commission biologists believe the catch dipped into the stocks last year and that such continued utilization can mean only a severe decline in the resource, affecting fishermen, boat owners, docks, canners, and consumers.

The measure now in Congress proposes a quota limiting the 1962 catch to 83,000 tons--74,600 tons during the yellowfin season and 8,400 tons incidental to the skipjack season which follows. The quota would be set annually by the Tuna Commission, and provision also is made for import restrictions on all yellowfin tuna except from countries with regulations meeting the conservation requirements.

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BUREAU OF OUTDOOR RECREATION ESTABLISHED:

Carrying out President Kennedy's instructions regarding the coordination of Federal outdoor recreation programs, Secretary of the Interior Stewart L. Udall on April 2, 1962, signed an order establishing a Bureau of Outdoor Recreation in the Department.

President Kennedy announced that Dr. Edward C. Crafts, of Chevy Chase, Md., would be appointed Director of the new Bureau. Crafts, a career Federal employee, is now serving as Assistant Chief of the Forest Service of the Department of Agriculture.

The Outdoor Recreation Resources Review Commission recommended the creation of the Bureau in its January 31 report, and President Kennedy in his special message on conservation, transmitted to Congress on March 1, said the recommendation would be adopted.

In the message, President Kennedy said: "This bureau will carry out the planning functions already assigned to the Department of the Interior and will administer the program of Federal assistance to State agencies. . .This new bureau will serve as the focal point within the Federal Government for the many activities related to outdoor recreation."

In the same message, the President called for legislation to establish a program of matching grants for the development of state plans for outdoor recreation.

In recommending a new bureau for outdoor recreation, the Outdoor Recreation Resources Review Commission--a blue-ribbon commission composed of outstanding conservationists and members of congress--said:

"There are now more than 20 Federal Agencies with programs involving some aspect of outdoor recreation. A similar multiplicity is found among state agencies. While the programs of these agencies are generally well planned in themselves, little thought is given to the over-all development of outdoor recreation throughout the Nation.

"There is at present no focal point for coordination of recreation policy, planning, programs, or management. Over-all responsibility for initiating and guiding a national effort in outdoor recreation has never been explicitly assigned... .After consideration of all possibilities, the recommendation for a new bureau in the Department of the Interior is made as the most likely to be accepted."

Secretary Udall created the new Bureau under the authority conferred on him by Reorganization Plan No. 3, approved by the 82nd Congress in 1950.

Besides administering the current state cooperative services under 1936 legislation and the proposed state assistance program on which legislation will soon be submitted, the new Bureau will assist the Secretary in carrying out his Federal outdoor recreation coordination responsibilities, sponsor and conduct recreation research, conduct recreation resource surveys, develop a nationwide recreation plan, and disseminate outdoor recreation information.

Secretary Udall said a nucleus organization is being formed and a number of the functions of the Park Service's Division of Recreation Resource Planning are being transferred to the new Bureau. The new Bureau will coordinate recreational planning, rather than carry out land-management functions of existing agencies.

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AMERICAN FISHERIES ADVISORY COMMITTEE

NEW MEMBERS NAMED BY INTERIOR SECRETARY:

Appointment of six new members of the American Fisheries Advisory Committee was announced on April 4, 1962, by Secretary of the Interior Stewart L. Udall. They replace former members who had served the maximum of two consecutive three-year terms.

The American Fisheries Advisory Committee has 20 members. It was organized in 1955 in accordance with provisions of the Saltonstall-Kennedy Act for the betterment of

the domestic commercial fishing industry. Members are selected from the ranks of active members of the industry for the purpose of making recommendations and advising the Secretary on technological, biological, economic, marketing, and educational problems of the domestic fisheries.

The committee meets once or twice a year, depending upon circumstances. Its most recent meeting was at Galveston, Tex., December 7 and 8, 1961. Matters discussed included the development of deep-water fisheries in the Gulf of Mexico, a long-range shrimp research program, marketing opportunities in several prairie States, and comparative fishing vessel construction costs.

Various fishery research programs are financed by the Saltonstall-Kennedy funds which represent an amount equal to 30 percent of the duties paid on the imports of fish and fishery products. The programs are conducted by the Bureau of Commercial Fisheries, Fish and Wildlife Service.

The six new members are: George J. Davidson, Boston Fish Pier, Boston, Mass.; Louis Fischer, Fischer's Sea Foods, Cocoa, Fla.; John A. Mehos, Liberty Fish and Oyster Company, Galveston, Tex.; Anthony Nizetich, Manager, Fishermen's Cooperative Association, San Pedro, Calif.; Einar Pedersen, Seattle, Wash.; and Daniel H. Smith, Smith Brothers Fisheries, Port Washington, Wis.

The continuing members are: William P. Ballard, President, Ballard Fish and Oyster Company, Inc., Norfolk, Va.; Ralph E. Carr, President, Mid-Central Fish Company, Kansas City, Mo.; Harold F. Cary, assistant to the President, Van Camp Sea Food Company, Long Beach, Calif.; Chris Dahl, Kayler-Dahl Fish Company, Petersburg, Alaska; Ray H. Full, President, Kishman Fish Company, Vermilion, Ohio; David H. Hart, Cape May, N.J.; H.R. Humphrey, Jr., President, Standard Products Company, Inc., White Stone, Va.; Leon S. Kenney, President, Pinellas Seafood Company, St. Petersburg, Fla.; E. Robert Kinney, President, Gorton's of Gloucester, Gloucester, Mass.; John S. McGowan, Executive Vice President, Bumble Bee Seafoods, Inc., Astoria, Oreg.; James McPhillips, Vice Chairman, Southern Industries Corporation, Mobile, Ala.; Arthur H. Mendonca, President, F.E. Booth, Inc., San Francisco, Calif.; J. Richards Nelson, Madison, Conn.; and Lawrence W. Strasburger, Metairie, La.

The retiring members are: Lawrence C. Calvert, President, San Juan Fishing and Packing Company, Seattle; John W. Lewis, Morgan City, La.; Donald P. Loker, Vice President, Star-Kist Food, Inc., Terminal Island, Calif.; Moses B. Pike, General Manager, Holmes Packing Corporation, Eastport, Maine; Harry F. Sahlman, Sahlman Sea Foods, Fernandina Beach, Fla.; and Arthur S. Sivertson, Sivertson Brothers Fisheries, Duluth, Minn.

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FISH AND WILDLIFE SERVICE

BUREAU OF COMMERCIAL FISHERIES

PROPOSED REVISION OF FISHERIES LOAN FUND PROCEDURES:

Proposed standards for underwriters furnishing insurance on collateral--principally fishing vessels--used in obtaining loans from the Department of the Interior Fisheries Loan Fund were published in the Federal Register of May 11, 1962. Other changes, primarily for the purpose of clarification, also are proposed.

The purpose of the revision is to provide for procedural changes necessitated by transfer of certain acts formerly performed by the Small Business Administration to the Department of the Interior, to clarify the meaning of several sections, and to provide published standards that insurance underwriters furnishing insurance on property serving as collateral for a fisheries loan fund must meet.

Because of the numerous changes, it is proposed to revise all of Part 250 referring to Fisheries Loan Fund procedures. The part includes sections on definition of terms; purposes of the loan fund; interpretation of loan authorization; qualified loan applicants; basic limitations; applications; processing of loan applications; approval of loans; interest; maturity; security; books, records, and reports; insurance required; and penalties on default.

The Fisheries Loan Fund was created by the Federal Fish and Wildlife Act of 1956 to finance assistance to the fishing industry to bring about a general upgrading of both fishing vessels and fishing gear.

Interested persons had until June 10, 1962, to submit their written comments, suggestions, or objections on the proposed changes to the Bureau of Commercial Fisheries.

Treasury Department

COAST GUARD

ADDITIONAL HELP ON BERING SEA FISHERY PATROL:

Increased efforts will be made in patrolling the fisheries of the eastern Bering Sea this year, the Department of the Interior reported on April 9, 1962.

At the request of the U. S. Bureau of Commercial Fisheries, the U. S. Coast Guard has agreed to expand its Alaskan patrol. The Coast Guard informed the Bureau that the cutters Winona (Port Angeles, Wash.), Wachusett, and Klamath (both stationed in Seattle, Wash.), assisted by Coast Guard planes, will enforce international and United States fisheries regulations. The areas to be covered are the eastern half of the Bering Sea, Bristol Bay, the area immediately south of the Aleutian Islands, and the Gulf of Alaska.

The patrol will be in addition to the annual Bering Sea Patrol, which has been carried out by the Coast Guard since 1867. This year's Bering Sea Patrol will be conducted by the

Coast Guard icebreakers Northwind (Seattle, Wash.) and Storis (Kodiak, Alaska).

The expanded Alaskan Patrol by the Coast Guard will permit the Bureau of Commercial Fisheries vessel John R. Manning (Juneau, Alaska) to increase its patrol efforts for protecting the halibut fisheries of the northern Pacific Ocean.

The increased enforcement activities result from numerous complaints received by the Bureau of alleged violations relative to the taking of salmon, halibut, whales, fur seals, and, in some instances, the use of illegal equipment in the areas to be patrolled.

White House

CONFERENCE ON CONSERVATION: President Kennedy and Vice President Johnson were the principal speakers at the White House Conference on Conservation in Washington, D. C., on May 24-25, 1962. President Kennedy spoke at 11:30 a.m., on Friday, May 25, and Vice President Johnson sounded the conference keynote.

The conference, held in the State Department Auditorium, brought together for the first time conservation spokesmen from throughout the country and Federal, state, and Congressional conservation authorities for a discussion of "Conservation for the Sixties."

The program included four panel sessions, two featuring Federal cabinet officers, one composed of the members of Congress, and one of state Governors. A question and answer period was part of each panel session.

Panel speakers from the Federal agencies, each discussing aims and objectives of their agencies in "Conservation for the Sixties," were Secretary of the Interior Stewart L. Udall, Secretary of Agriculture Orville L. Freeman, and Robert C. Weaver, Administrator of the Housing and Home Finance Agency, Abraham A. Ribicoff, Secretary of Health, Education and Welfare, and Elvis J. Stahr, Secretary of the Army. Moderator of the morning session was Laurance S. Rockefeller, Chairman of the Outdoor Recreational Resources Review Commission. Gilbert F. White, Chairman of the Department of Geography at the University of Chicago, was the afternoon moderator.

Following the conclusion of the executive department panels, Senator Clinton P. Anderson of New Mexico, Chairman of the Senate Interior and Insular Affairs Committee, took over as moderator of the panel on "Conservation and the Congress." Participating with him were Senators John Sherman Cooper of Kentucky and Hubert H. Humphrey of Minnesota and Representatives Wayne N. Aspinall of Colorado and John P. Saylor of Pennsylvania. Senator Cooper is a member of the Agriculture and Forestry and Public Works Committees, and Senator Humphrey is a member of the Appropriations Committee. Aspinall is Chairman of the House Interior and Insular Affairs Committee and Saylor is ranking minority member of the same committee.

Friday morning, May 25, prior to the President's address, was devoted to a panel of State Governors.

Eighty-Seventh Congress

(Second Session)

Public bills and resolutions which may directly or indirectly affect fisheries and allied industries are reported. Introduction, referral to committees, pertinent legislative actions, hearings, and other actions by the House and Senate, as well as signature into law or other final disposition are covered.

AID BY FOREIGN GOVERNMENTS TO FISHERIES: The Fishing Industry, A Report on Foreign Governmental Protection of Fishing Industries Against Competition from Imports, Committee Print (87th Congress, 1st Session, Prepared at the Request of the Committee on Commerce, United States Senate, by the Legislative Reference Service of the Library of Congress), 16 pp., printed. A wide range of measures have been taken by governments to encourage their fishing industries. In the OEEC countries, various types of loan assistance and subsidies for the construction of fishing vessels and processing plants are provided. Some quantitative restrictions against fishery imports still exist, but they are gradually disappearing. In this report there are charts showing the custom duties on fishery products in various countries. Short summaries of the fishery import duties and regulations of the different foreign countries are given.

ANTIDUMPING ACT AMENDMENT: S. 3284 (Javits) was introduced in the Senate on May 10, 1962, to amend certain provisions of the Antidumping Act, 1921; referred to the Committee on Finance. Would amend the Antidumping Act of 1921, to make it more effective in

preventing Soviet bloc exports from disrupting free world markets.

EXEMPT TRANSPORTATION OF AGRICULTURAL AND FISHERY PRODUCTS: The Senate and the House on May 1, 1962, received an executive communication from the Secretary of Commerce, transmitting a draft of proposed legislation, a bill to exempt certain carriers from minimum rate regulation in the transportation of bulk commodities, agricultural and fishery products, and passengers, and for other purposes.

S. 3243 (Magnuson) introduced in the Senate on May 3, 1962, to exempt certain carriers from minimum rate regulation in the transportation of bulk commodities, agricultural and fishery products, and passengers, and for other purposes; referred to the Committee on Commerce. The bill exempts carriers from minimum rate regulation by the Civil Aeronautics Board, the Federal Maritime Commission, and the Interstate Commerce Commission in the transportation of bulk commodities and certain agricultural and fishery products. The exemption from minimum rate regulation provided would apply to all carriers subject to regulation by the Interstate Commerce Commission. Such exemption applies to (1) bulk commodities, (2) agricultural and fishery products, and (3) passengers. The exemption from minimum rate regulation for the transportation of certain agricultural and fishery products (specified in sec. 203(b) of the Interstate Commerce Act) now available only to motor carriers and freight forwarders would be extended under this section to all carriers subject to the Interstate Commerce Act. The proposed bill defines "property consisting of ordinary livestock, fish (including shellfish), or agricultural (including horticultural) commodities (not including manufactured products thereof) shall not be deemed to include frozen fruits, frozen berries, frozen vegetables, wool tops, and noils, or wool waste (carded, spun, woven, or knitted), and shall be deemed to specifically include cooked or uncooked (including breaded) fish or shellfish when frozen or fresh (but not including fish and shellfish which have been treated for preserving, such as canned, smoked, pickled, spiced, corned, or kippered products."

H.R. 11583 (Harris, a companion bill to S. 3243, was introduced in the House on May 3, 1962, referred to the Committee on Interstate and Foreign Commerce.

FISH AND WILDLIFE LEGISLATION: 1962--Miscellaneous Fish and Wildlife Legislation (Hearings before the Subcommittee on Fisheries and Wildlife Conservation of the Committee on Merchant Marine and Fisheries, House of Representatives, 87th Congress, 2nd Session), 141 pp., printed. Contains hearings on H.R. 2722, to direct the Secretary of the Interior to establish a research program in order to determine means of improving the conservation of game and food fish in dam reservoirs; H.R. 6529, to provide for the establishment of a new fish hatchery in the eastern part of the State of Tennessee; H.R. 7336, to authorize the Secretary of the Interior to make loans to certain producers of oysters, and for other purposes; and H.R. 8371, to authorize the Secretary of the Interior to establish, construct, equip, operate, and maintain a fish hatchery in DeKalb County, Tennessee.

FISHERY MARKETING ACT AMENDMENT: H.R. 11562 (Pelly) and H.R. 11573 (Zelenko) were introduced in the House on May 2, 1962, and H.R. 11606 (Tollefson) on May 3, to make clear that fishermen's organizations, regardless of their technical legal status, have a voice in the ex-vessel sale of fish or other aquatic products on which the livelihood of their members depends; referred to the Committee on Merchant Marine and Fisheries. Would amend the Fisheries Marketing Act of 1934 to extend bargaining privileges to organizations composed of both employee fishermen and those who own or have an interest in the boats or gear with which they fish. Similar to other bills previously introduced.

INTERIOR APPROPRIATIONS FY 1963: Interior Department and Related Agencies Appropriations for 1963 (Hearings before a Subcommittee of the Committee on Appropriations, United States Senate, 87th Congress, 2nd Session on H.R. 10802), 1446 pp., printed. Included is the testimony for funds for the Fish and Wildlife Service: the Commissioner's Office and its two bureaus, Sport Fisheries and Wildlife, and Commercial Fisheries.

The Subcommittee of the Senate Committee on Appropriations met in executive session on May 1, 1962, to consider H.R. 10802, making appropriations for the Department of the Interior and related agencies for the fiscal year ending June 30, 1963, and for other purposes. Funds for the Fish and Wildlife Service and its two Bureaus are included in this bill.

The Senate Committee on Appropriations met in executive session on May 9, 1962, to consider H.R. 10802. The Committee, on May 10, 1962, met in executive session, and ordered favorably reported with amendments H.R. 10802.

S. Rept. No. 1450, Interior Department and Related Agencies Appropriation Bill, 1963 (May 10, 1962, a report from the Senate Committee on Appropriations, to accompany H.R. 10802), 39 pp., printed. The Committee recommended funds for Interior Department for fiscal year 1963 be increased over the amount included in the House bill.

For the Bureau of Commercial Fisheries under management and investigations of resources, the Committee recommended an appropriation of $15,981,500, which is $1,381,500 more than the House allowance and $768,500 more than the budget estimate. For management and investigations of resources the appropriation for 1962 was $12,550,000 (includes $400,000 in Supplemental Appropriation Act of 1962); budget estimate, 1963, $15,213,000; House allowance $14,600,000. Included in the Committee recommendation is the full amount of the budget estimate for research of fish migration over dams and $56,500 of the $113,000 reduction imposed by the House on funds for travel, supplies and materials, and equipment. Also included is: (1) $350,000 for increased biological research on shrimp in the Gulf of Mexico, (2) $125,000 for an accelerated program on research and development of shrimp gear, and (3) $350,000 for a program of Atlantic herring research. In addition to the amount indicated, the Committee concurred with the House allowance of $300,000 for purchase of foreign currencies to be used for research contracts in foreign countries. A recommendation of $8,473,000 for construction activities was made. This includes $413,000 of the $514,000 disallowed by the House for fixed equipment to be built into the fishery laboratories to be constructed at Seattle, Wash., and at Ann Arbor, Mich. The amount also includes $160,000 to purchase land and accomplish land filling necessary in connection with construction of the Shellfish Research Center at Milford, Conn., authorized by Public Law 87-173. The Committee concurred with the House allowance of $750,000 for subsidy payments for fishing vessels constructed in U. S. yards. The Committee also

concurred with the House allowance of $600,000 for general administrative expenses. The Committee recommended $1,998,000 for the administration of the Pribilof Islands, the same as the House allowance; and a limitation of $250,000 (same as House allowance) on administrative expenses for the fisheries loan fund.

For the Bureau of Sport Fisheries and Wildlife, the appropriation for 1962 under management and investigation of resources was $23,315,650; budget estimate, 1963, $26,572,000; the House allowed $26,500,000; the Senate Committee recommended $27,436,000, with increases earmarked for a number of different activities. Committee recommended $8,033,800 for construction of fish hatcheries, wildlife refuges, and fish and wildlife research facilities as compared to the House allowance of $4,900,000 and the budget estimate of $4,086,000. The increase provides for hatchery construction, expansion of research facilities, modernization and improvement of fish hatcheries, etc. The Committee concurred with the House allowance of $7 million for migratory bird conservation. The Committee recommended $1,331,000, the full amount of the budget estimate and $81,000 more than the House allowance, for general administrative expenses.

For the Office of the Commissioner of Fish and Wildlife, the Committee approved $364,000, the same as the amount allowed by the House, the budget estimate, and the 1962 appropriations.

MEDICAL CARE FOR VESSEL PERSONNEL: The Merchant Marine and Fisheries Subcommittee of the Senate Committee on Commerce on May 2, 1962, held and concluded hearings on S. 367, to provide medical care for certain persons engaged on board a vessel in the care, preservation, or navigation of such vessel. Testimony was received from various Federal agencies and industry.

OCEANOGRAPHY: Study of the Effectiveness of the Committee on Oceanography of the Federal Council for Science and Technology (Hearings before the Subcommittee on Oceanography of the Committee on Merchant Marine and Fisheries, U. S. House of Representatives, 87th Congress, 2nd Session), 222 pp., printed. Contains hearings held February 28, March 1 and 2, 1962. Testimony was given by Government agencies and research groups.

PRICE-QUALITY STABILIZATION: H.R. 11778 (May) introduced in the House on May 16, 1962, to amend the Federal Trade Commission Act, to promote quality and price stabilization, to define and restrain certain unfair methods of distribution and to confirm, define, and equalize the rights of producers and resellers in the distribution of goods identified by distinguishing brands, names, or trademarks, and for other purposes; to the Committee on Interstate and Foreign Commerce. Similar to other bills previously introduced.

SCIENCE AND TECHNOLOGY OFFICE: H. Res. 595 (Anderson) was introduced in the House on April 11, 1962, disapproving Reorganization Plan Number 2 of 1962; referred to the Committee on Government Operations.

Reorganization Plan No. 2 of 1962, Office of Science and Technology--National Science Foundation (Hearing before the Subcommittee of the Committee on Government Operations, House of Representatives, 87th Congress, 2nd Session), 50 pp., printed. Contains the hearing held on April 17, 1962, on the President's Reorganization Plan No. 2 of 1962, which would establish in the Executive Office of the President the Office of Science and Technology, and H. Res. 595, that the House of Representatives does not favor the Reorganization Plan Numbered 2 of 1962. Statements were presented by Government personnel and interested persons.

House Report No. 1635, Approving Reorganization Plan No. 2 of 1962 (Office of Science and Technology--National Science Foundation)--April 19, 1962, Report from the Committee on Government Operations to accompany H. Res. 595, 12 pp., printed. Committee reported unfavorably on H. Res. 595 and recommended that the resolution do not pass. The report contains a summary of Reorganization Plan No. 2 of 1962, which would establish in the Executive Office of the President the Office of Science and Technology. The report contains H. Res. 595, its purpose, analysis of the plan, and general statements of the various agencies interested in the plan. The committee stated that "the plan is a reasonable exercise of the President's powers under the Reorganization Act and would be beneficial to the Government."

The House on May 17, 1962, by a voice vote, rejected H. Res. 595, to disapprove Reorganization Plan No. 2 of 1962 (to establish in the Executive Office of the President the Office of Science and Technology). The effect of the rejection of the resolution is that the plan is approved. Under the Reorganization Act, unless either the House or the Senate disapproves a Reorganization plan of the President by resolution within a specified time, the plan goes into effect. "Reorganization Plan No. 2 of 1962, Relating to Certain Reorganizations in the Field of Science Technology (House Doc. 372)," establishes the Office of Science and Technology as a new unit within the Executive Office of the President; places at its head a Director appointed by the President and by the advice and consent of the Senate and provides for a Deputy Director similarly appointed; and transfers to the Director certain functions of the National Science Foundation. The principal function of the new Office is to coordinate and evaluate the research and development programs of the various Federal Government agencies in order to eliminate duplication. The Director of the new office will be conferred certain functions now performed by the National Science Foundation in order to enable the Director to advise and assist the President in achieving coordinated Federal policies for the promotion of basic research and education in the sciences and the authority to evaluate scientific research programs undertaken by agencies of the Federal Government. Also, the plan provides for certain reorganizations within the Foundation to strengthen the position of Director in that agency.

SCIENCE AND TECHNOLOGY COMMISSION: The Senate Committee on Government Operations held hearings on May 10, 1962, on S. 2771, to establish a Commission on Science and Technology. Testimony was received from various Government agencies and interested persons outside the Government. It was announced that future hearings would be held on this bill for which no dates were set. The Committee recessed subject to call.

TARIFF CLASSIFICATION RESTATEMENT IN TARIFF ACT OF 1930: The House on May 10, 1962, concurred with the Senate amendment to H.R. 10607, to amend the Tariff Act of 1930 and certain related laws to provide for the restatement of the tariff classification provisions, and for other purposes. The bill was cleared for the President.

TECHNOLOGICAL LABORATORY LAND IN MARYLAND: S. 3019 (Beall) introduced in the Senate on March 19, 1962, to provide for the conveyance of certain real property of the United States to the State of Maryland; referred to the Committee on Interior and Insular Affairs. Property affected is the site of the Bureau of Commercial Fisheries Technological Laboratory at College Park, Md.

TRADE AGREEMENTS EXTENSION ACT OF 1962: H.R. 11708 (Davis) was introduced in the House on May 10, 1962, to extend the authority of the President to enter into trade agreements under section 350 of the Tariff Act of 1930, as amended, and to provide for use of that authority so as to expand United States exports and to establish the conditions for fair competition between imported articles and articles of domestic production; referred to the Committee on Ways and Means.

TRANSPORTATION ACT OF 1962: The House and the Senate on May 1, 1962, received an executive communication from the Secretary of Commerce, transmitting a draft of proposed legislation, a bill to provide for strengthening and improving the national transportation system, and for other purposes.

S. 3242 (Magnuson) introduced in the Senate on May 3, 1962, to provide for strengthening and improving the national transportation system, and for other purposes; referred to the Committee on Commerce. The bill empowers the regulatory transportation agencies to sanction experimental freight rates, and modifications in existing systems of service, classification, and documentation; prohibits common carriers subject to the Interstate Commerce Act from discriminating as to service or rates in the transportation of vehicles or containers tendered by shippers or carriers; declares it to be in the national interest that through service and joint rates, fares and charges between carriers of all modes of transport be encouraged and promoted and authorizes the Federal Maritime Commission to participate with the Civil Aeronautics Board and the Interstate Commerce Commission in joint boards for the review of such rates; authorizes the Interstate Commerce Commission to enter into cooperative agreements with the states for enforcement of the economic and safety laws and regulations of the States and the Federal Government concerning highways transportation.

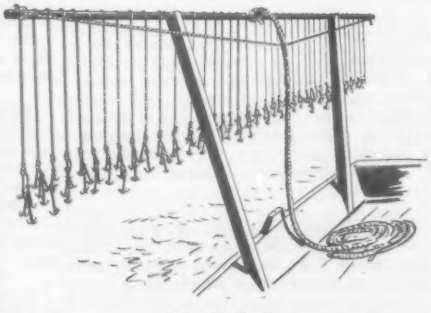
H.R. 11584 (Harris), a companion bill to S. 3242, was introduced in the House on May 3, 1962, referred to the Committee on Interstate and Foreign Commerce.

TUNA CONVENTION ACT OF 1950: On April 27, 1962, Senator Engle (for himself and Sen. Magnuson) submitted, by request, an amendment in the nature of a substitute for S. 2568, a bill to amend the act of September 7, 1950, to extend the regulatory authority of the Federal and State agencies concerned under the terms of the Convention for the establishment of an Inter-American Tropical Tuna Commission, signed at Washington, May 31, 1949, and for other purposes. The substitute bill was referred to the Committee on Commerce. The substitute bill provides authority for the United States to enact conservation regulations in order to respond to the Commission's recommendations for an annual yellowfin tuna catch quota for the Convention area in the Eastern Pacific. It now changes a number of sections of S. 2568. The Inter-American Tropical Tuna Commission was originally conceived as an investigatory body. But with recent development of new fishing techniques and gear, namely purse seining with nylon nets and power blocks, the productivity of the U. S. tuna fleet has increased rapidly, particularly as regards yellowfin tuna, and certain conservation regulations are needed.

The Senate Subcommittee of the Merchant Marine and Fisheries Committee met on May 23, 1962, to consider S. 2568.

CROWFOOT BAR

This type of equipment consists of a large metal bar to which are attached numerous lines closely set together. To each line there is affixed several barbless hooks. When the gear is dragged over the bottom, the hooks catch between the shells of the fresh-water mussel lifting the animal from the bottom. It is only used in inland waters where fresh-water mussels are taken commercially.

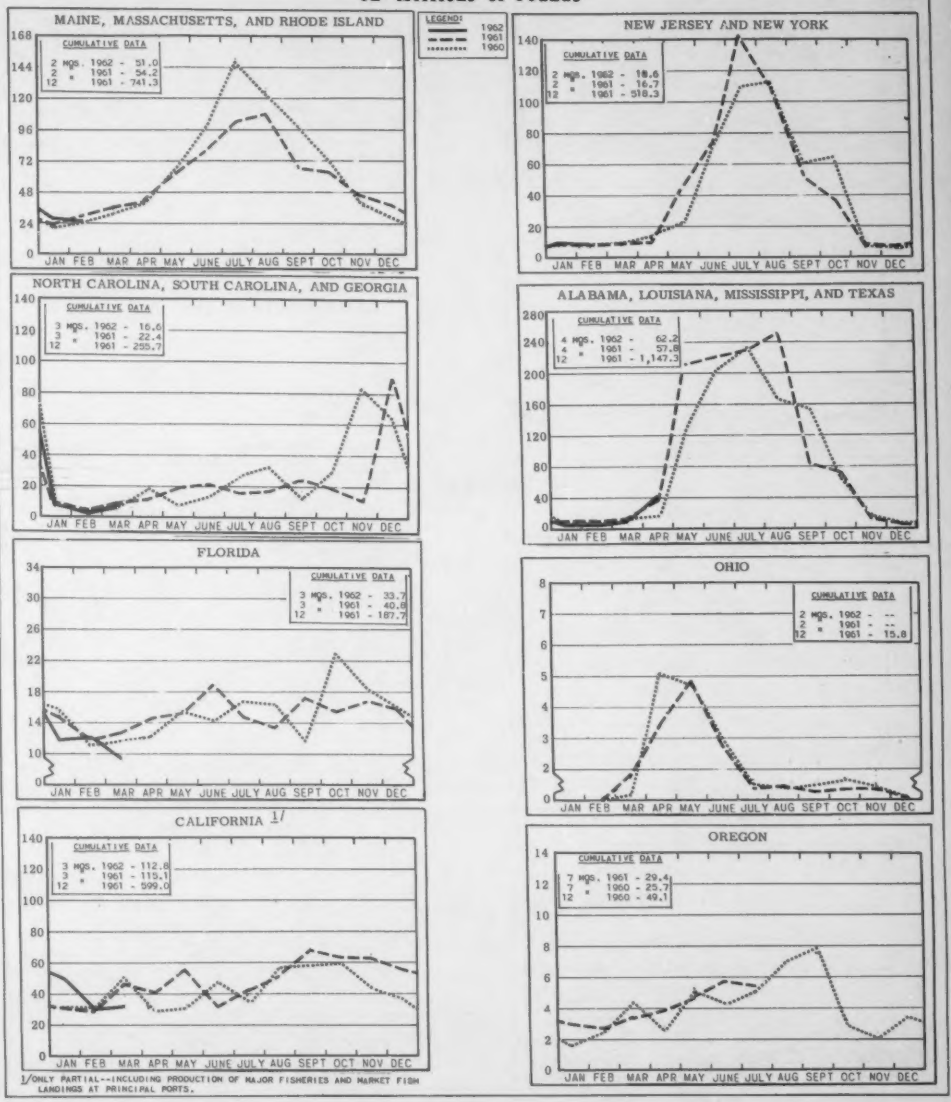


Crowfoot bar.

Note: Excerpt from Circular 109, Commercial Fishing Gear of the United States, for sale from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., single copy, 40 cents.

CHART 1 - FISHERY LANDINGS for SELECTED STATES

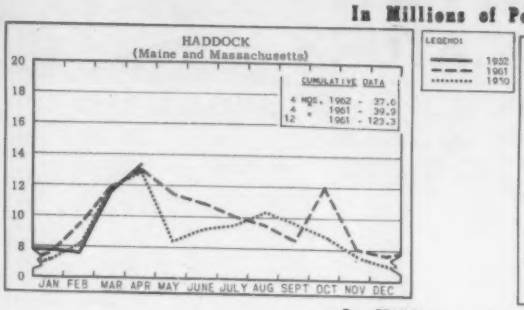
In Millions of Pounds

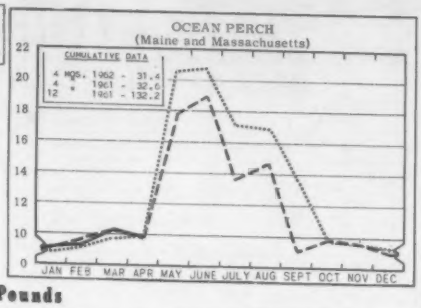

MAINE, MASSACHUSETTS, AND RHODE ISLAND
CUMULATIVE DATA
2 MOS. 1962 - 51.0
2 " 1961 - 54.2
12 " 1961 - 741.3
LEGEND:
1962
1961
1960
NEW JERSEY AND NEW YORK
CUMULATIVE DATA
2 MOS. 1962 - 18.6
2 " 1961 - 16.7
12 " 1961 - 518.3
NORTH CAROLINA, SOUTH CAROLINA, AND GEORGIA
CUMULATIVE DATA
3 MOS. 1962 - 16.6
3 " 1961 - 22.4
12 " 1961 - 255.7
ALABAMA, LOUISIANA, MISSISSIPPI, AND TEXAS
CUMULATIVE DATA
4 MOS. 1962 - 62.2
4 " 1961 - 57.8
12 " 1961 - 1,147.3
FLORIDA
CUMULATIVE DATA
3 MOS. 1962 - 33.7
3 " 1961 - 40.8
12 " 1961 - 187.7
OHIO
CUMULATIVE DATA
2 MOS. 1962 - --
2 " 1961 - --
12 " 1961 - 15.8
CALIFORNIA 1/
CUMULATIVE DATA
3 MOS. 1962 - 112.8
3 " 1961 - 115.1
12 " 1961 - 599.0
OREGON
CUMULATIVE DATA
7 MOS. 1961 - 29.4
7 " 1960 - 25.7
12 " 1960 - 49.1
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

1/ONLY PARTIAL--INCLUDING PRODUCTION OF MAJOR FISHERIES AND MARKET FISH LANDINGS AT PRINCIPAL PORTS.

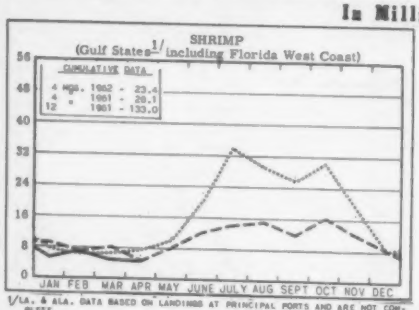
CHART 2 - LANDINGS for SELECTED FISHERIES

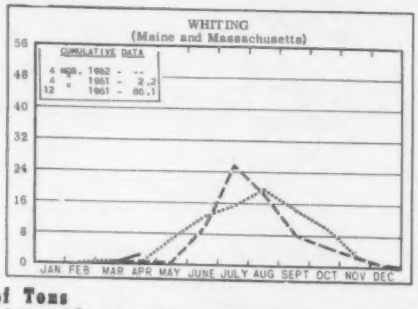
In Millions of Pounds




OCEAN PERCH
(Maine and Massachusetts)
CUMULATIVE DATA
4 MOS. 1962 - 31.4
4 " 1961 - 32.6
12 " 1961 - 132.2
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

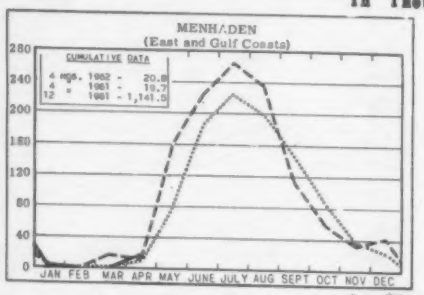
In Millions of Pounds

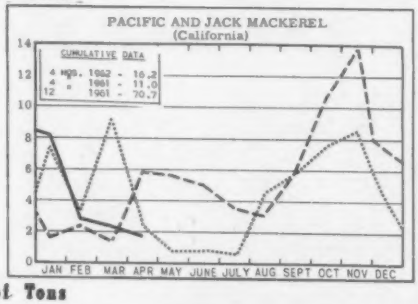

SHRIMP
(Gulf States 1/ including Florida West Coast)
CUMULATIVE DATA
4 MOS. 1962 - 23.4
4 " 1961 - 28.1
12 " 1961 - 133.0
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC


WHITING
(Maine and Massachusetts)
CUMULATIVE DATA
4 MOS. 1962 - --
4 " 1961 - 2.2
12 " 1961 - 86.1
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

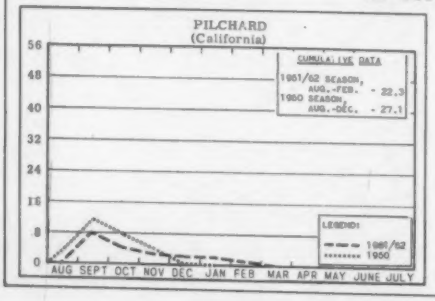
1/LA. & ALA. DATA BASED ON LANDINGS AT PRINCIPAL PORTS AND ARE NOT COMPLETE.

In Thousands of Tons


MENHADEN
(East and Gulf Coasts)
CUMULATIVE DATA
4 MOS. 1962 - 20.8
4 " 1961 - 19.7
12 " 1961 - 1,141.5
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC


PACIFIC AND JACK MACKEREL
(California)
CUMULATIVE DATA
4 MOS. 1962 - 16.2
4 " 1961 - 11.0
12 " 1961 - 70.7
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

In Thousands of Tons



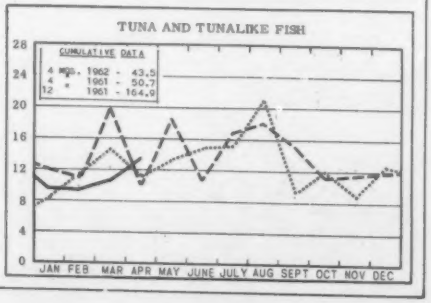
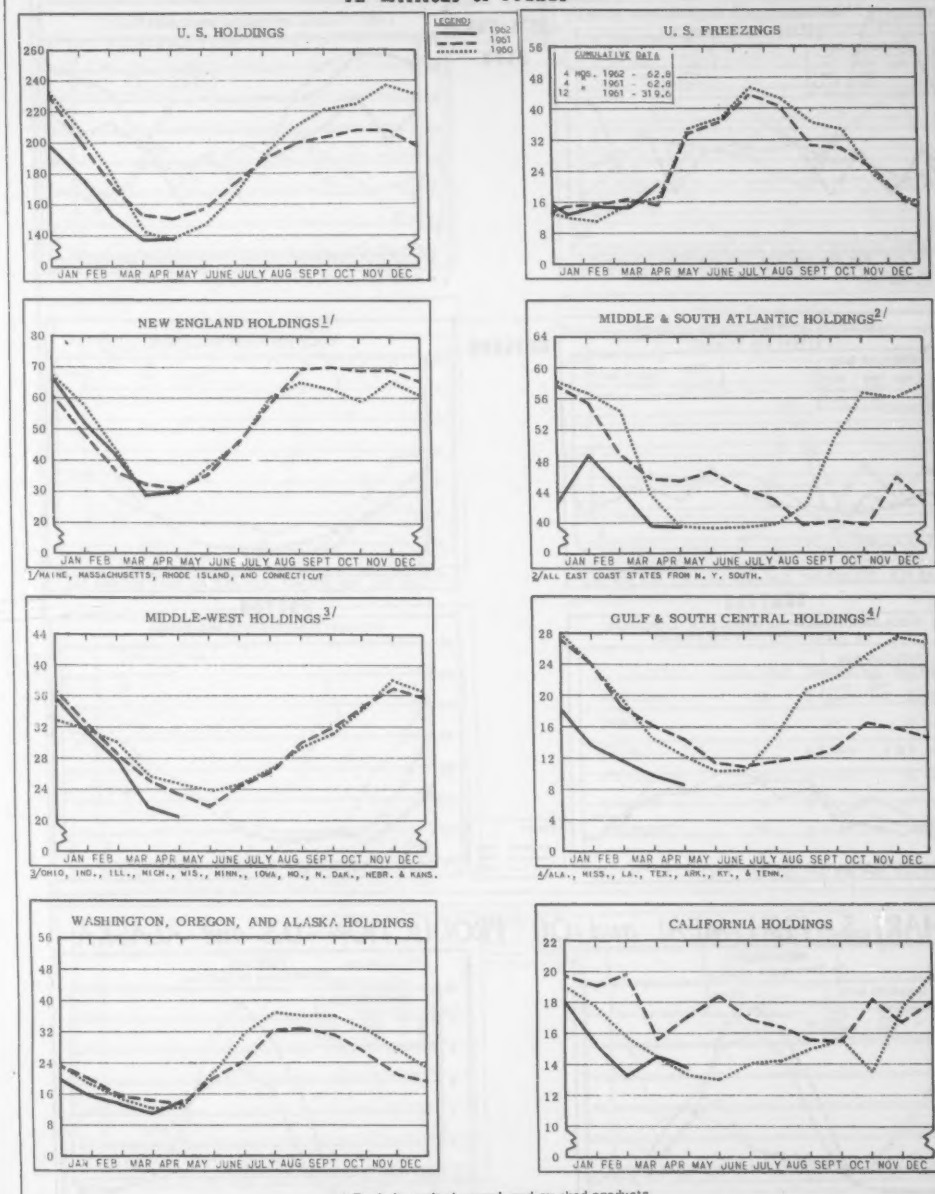

TUNA AND TUNALIKE FISH
CUMULATIVE DATA
4 MOS. 1962 - 43.5
4 " 1961 - 50.7
12 " 1961 - 164.9
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

CHART 3 - COLD-STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS *

In Millions of Pounds



* Excludes salted, cured, and smoked products.

CHART 4 - RECEIPTS and COLD-STORAGE HOLDINGS of FISHERY PRODUCTS at PRINCIPAL DISTRIBUTION CENTERS

In Millions of Pounds

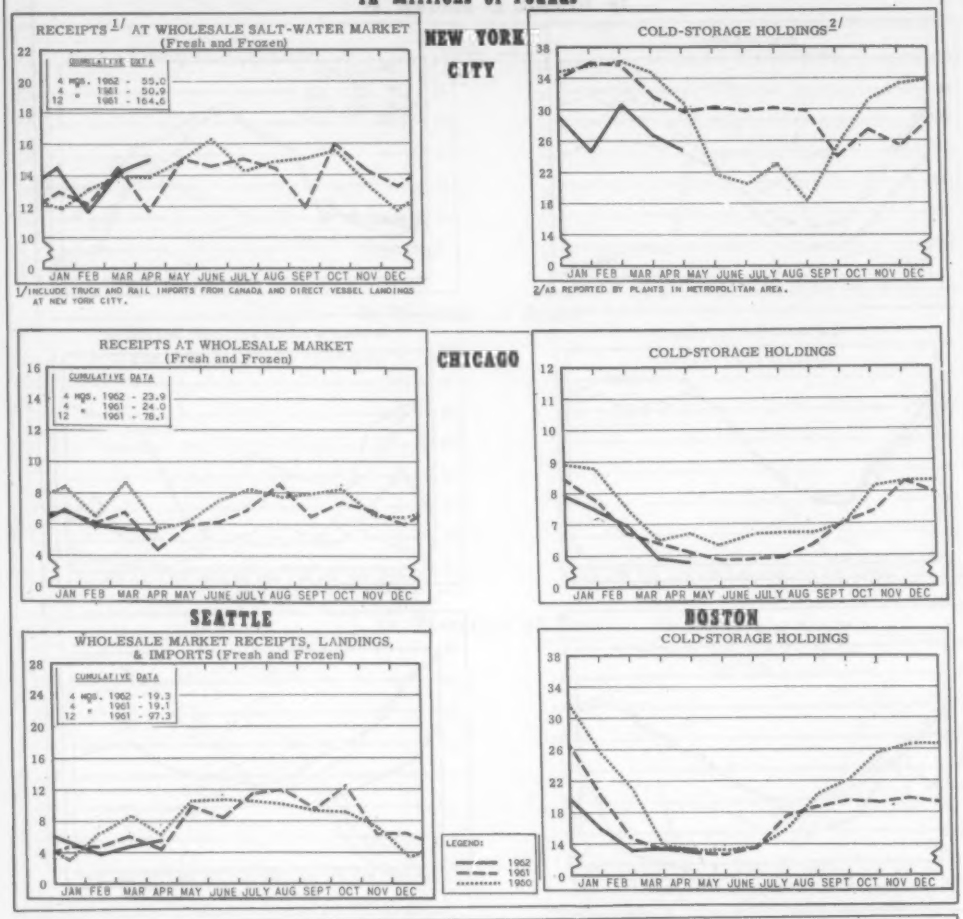

RECEIPTS 1/ AT WHOLESALE SALT-WATER MARKET (Fresh and Frozen)
CUMULATIVE DATA
4 MOS. 1962 - 55.0
4 " 1961 - 50.9
12 " 1961 - 164.6
NEW YORK CITY
COLD-STORAGE HOLDINGS 2/
1/INCLUDE TRUCK AND RAIL IMPORTS FROM CANADA AND DIRECT VESSEL LANDINGS AT NEW YORK CITY.
2/AS REPORTED BY PLANTS IN METROPOLITAN AREA.
RECEIPTS AT WHOLESALE MARKET (Fresh and Frozen)
CUMULATIVE DATA
4 MOS. 1962 - 23.9
4 " 1961 - 24.0
12 " 1961 - 78.1
CHICAGO
COLD-STORAGE HOLDINGS
SEATTLE
WHOLESALE MARKET RECEIPTS, LANDINGS, & IMPORTS (Fresh and Frozen)
CUMULATIVE DATA
4 MOS. 1962 - 19.3
4 " 1961 - 19.1
12 " 1961 - 97.3
BOSTON
COLD-STORAGE HOLDINGS
LEGEND:
1962
1961
1960
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

CHART 5 - FISH MEAL and OIL PRODUCTION - U.S and ALASKA

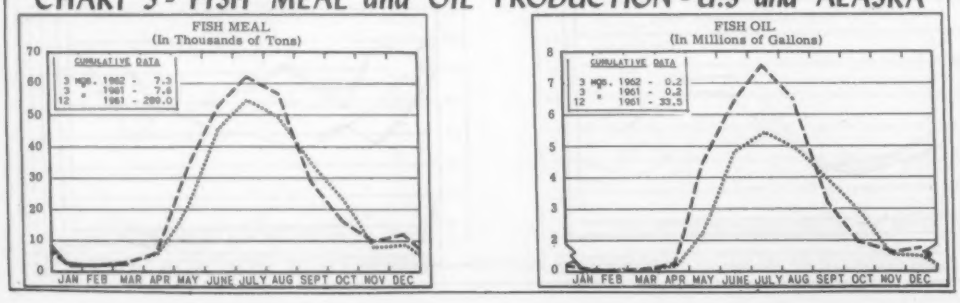
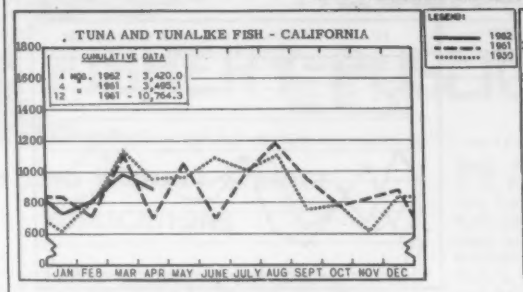
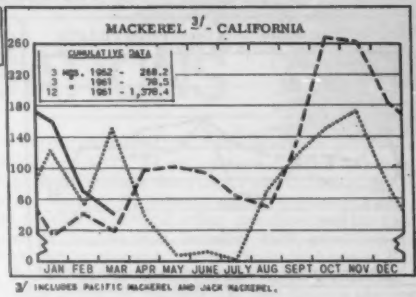

FISH MEAL
(In Thousands of Tons)
CUMULATIVE DATA
3 MOS. 1962 - 7.3
3 " 1961 - 7.8
12 " 1961 - 200.0
FISH OIL
(In Millions of Gallons)
CUMULATIVE DATA
3 MOS. 1962 - 0.2
3 " 1961 - 0.2
12 " 1961 - 33.5
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

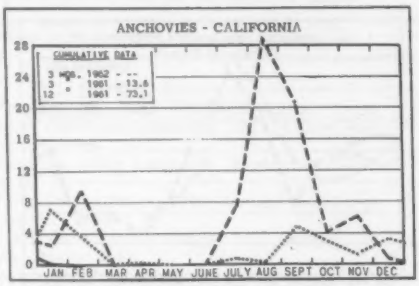
CHART 6 - CANNED PACKS of SELECTED FISHERY PRODUCTS

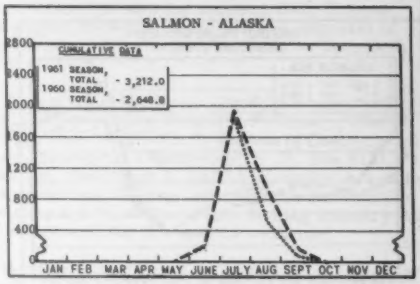
In Thousands of Standard Cases

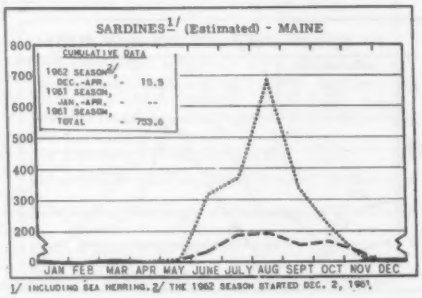



MACKEREL 3/ - CALIFORNIA
CUMULATIVE DATA
3 mos. 1962 - 288.2
3 " 1961 - 78.5
12 " 1961 - 1,378.4
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

3/ INCLUDES PACIFIC MACKEREL AND JACK MACKEREL.



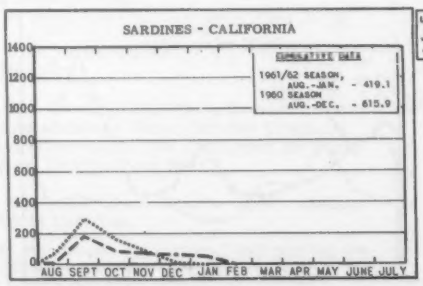

SALMON - ALASKA
CUMULATIVE DATA
1961 SEASON, TOTAL - 3,212.0
1960 SEASON, TOTAL - 2,648.8
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC


SARDINES 1/ (Estimated) - MAINE
CUMULATIVE DATA
1962 SEASON 2/ DEC.-APR. - 18.9
1961 SEASON, JAN.-APR. - --
1961 SEASON, TOTAL - 733.6
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

1/ INCLUDING SEA HERRING. 2/ THE 1962 SEASON STARTED DEC. 2, 1961.

STANDARD CASES

Variety	No. Cans	Designation	Net Wgt.
SARDINES.....	100	¼ drawn	3¾ oz.
SHRIMP.....	48	--	5 oz.
TUNA.....	48	# ½ tuna	6 & 7 oz.
PILCHARDS...	48	# 1 oval	15 oz.
SALMON.....	48	1-lb. tall	16 oz.
ANCHOVIES...	48	½-lb.	8 oz.


SARDINES - CALIFORNIA
CUMULATIVE DATA
1961/62 SEASON, AUG.-JAN. - 419.1
1960 SEASON AUG.-DEC. - 615.9
AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE JULY

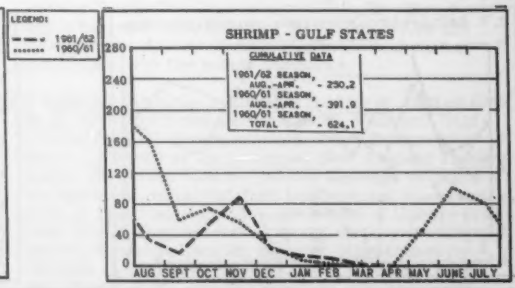
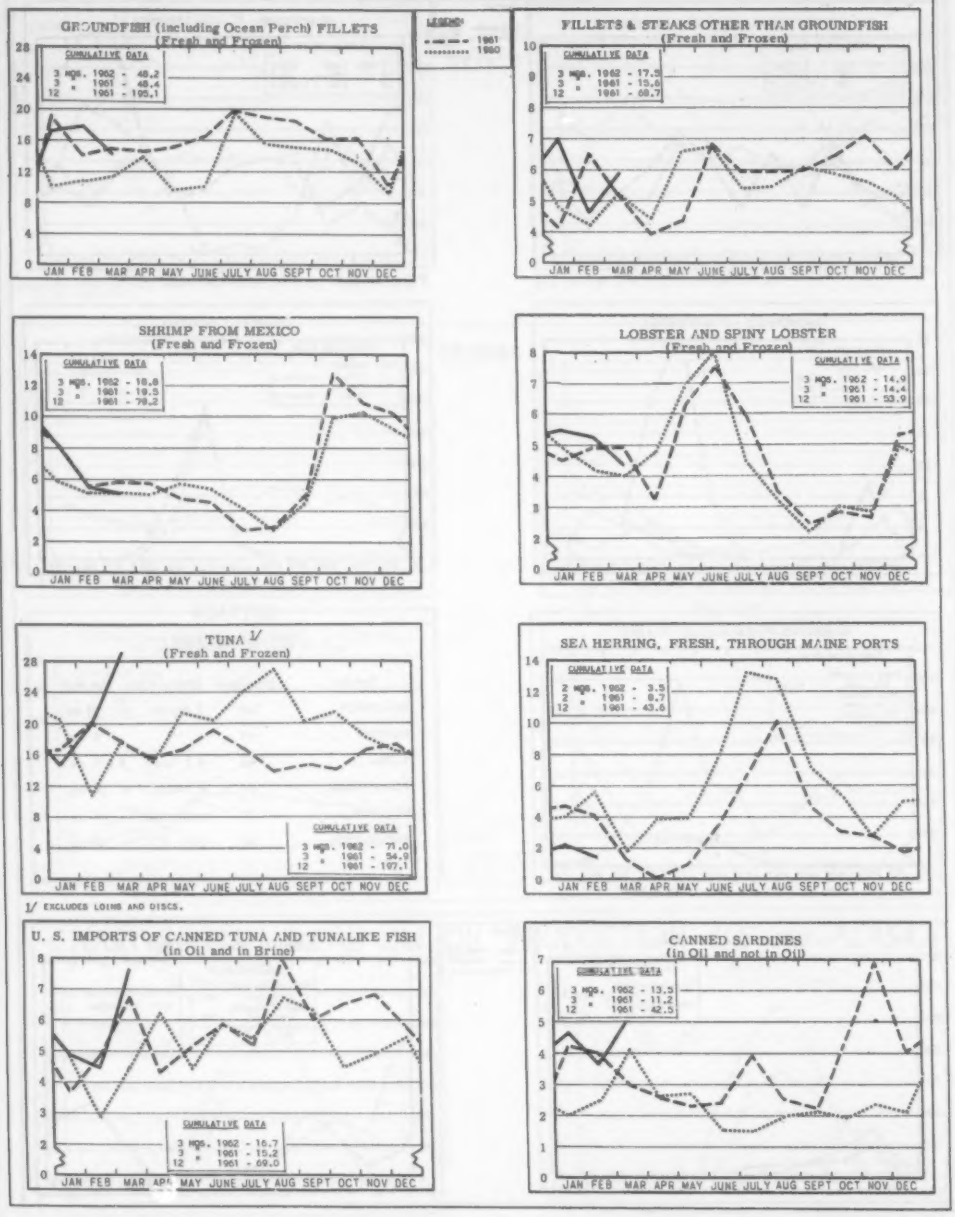

LEGEND:
1961/62
1960/61
SHRIMP - GULF STATES
CUMULATIVE DATA
1961/62 SEASON, AUG.-APR. - 230.2
1960/61 SEASON, AUG.-APR. - 391.9
1960/61 SEASON, TOTAL - 624.1
AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE JULY

CHART 7 - U.S. FISHERY PRODUCTS IMPORTS

In Millions of Pounds


GROUNDFISH (including Ocean Perch) FILLETS
(Fresh and Frozen)
CUMULATIVE DATA
3 MOS. 1962 - 48.2
3 " 1961 - 48.4
12 " 1961 - 195.1
LEGEND
1961
1960
FILLETS & STEAKS OTHER THAN GROUNDFISH
(Fresh and Frozen)
CUMULATIVE DATA
3 MOS. 1962 - 17.5
3 " 1961 - 15.8
12 " 1961 - 68.7
SHRIMP FROM MEXICO
(Fresh and Frozen)
CUMULATIVE DATA
3 MOS. 1962 - 18.8
3 " 1961 - 19.5
12 " 1961 - 78.2
LOBSTER AND SPINY LOBSTER
(Fresh and Frozen)
CUMULATIVE DATA
3 MOS. 1962 - 14.9
3 " 1961 - 14.4
12 " 1961 - 53.9
TUNA 1/
(Fresh and Frozen)
CUMULATIVE DATA
3 MOS. 1962 - 71.0
3 " 1961 - 54.9
12 " 1961 - 197.1
SEA HERRING, FRESH, THROUGH MAINE PORTS
CUMULATIVE DATA
2 MOS. 1962 - 3.5
2 " 1961 - 8.7
12 " 1961 - 43.6
1/ EXCLUDES LOINS AND DISCS.
U. S. IMPORTS OF CANNED TUNA AND TUNALIKE FISH
(in Oil and in Brine)
CUMULATIVE DATA
3 MOS. 1962 - 16.7
3 " 1961 - 15.2
12 " 1961 - 69.0
CANNED SARDINES
(in Oil and not in Oil)
CUMULATIVE DATA
3 MOS. 1962 - 13.5
3 " 1961 - 11.2
12 " 1961 - 42.5
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE OFFICE OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES.
SEP.- SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.

Number Title

CFS-2808 - Frozen Fish, 1961, Annual Summary, 14 pp.
CFS-2829 - South Carolina Landings, 1961, Annual Summary, 5 pp.
CFS-2830 - Massachusetts Landings, November 1961, 5 pp.
CFS-2831 - Virginia Landings, 1961, Annual Summary, 10 pp.
CFS-2832 - North Carolina Landings, 1961, Annual Summary, 8 pp.
CFS-2833 - Maine Landings, January 1962, 4 pp.
CFS-2837 - Michigan Landings, January 1962, 2 pp.
CFS-2838 - South Carolina Landings, January 1962, 2 pp.
CFS-2839 - Frozen Fish Report, February 1962, 8 pp.
CFS-2846 - Alabama Landings, January 1962, 2 pp.
CFS-2849 - New Jersey Landings, January 1962, 3 pp.
CFS-2851 - New York Landings, January 1962, 4 pp.
CFS-2852 - Mississippi Landings, January 1962, 2 pp.
CFS-2853 - Virginia Landings, January 1962, 3 pp.
CFS-2854 - Georgia Landings, February 1962, 2 pp.
CFS-2858 - Georgia Landings, 1961, Annual Summary, 8 pp.
CFS-2859 - South Carolina Landings, February 1962, 2 pp.
CFS-2861 - Packaged Fishery Products, 1961, Annual Summary, 5 pp.
CFS-2863 - Industrial Fishery Products, 1961, Annual Summary, 9 pp.
CFS-2865 - Fish Meal and Oil, February 1962, 2 pp.

Sep. No. 647 - Fish Protein Concentrate--A High Quality Animal Protein.

Sep. No. 648 - Rat-Feeding Studies To Determine Presence of Antimetabolites, Water-Soluble Vitamins, and Essential Minerals in Raw Menhaden as Compared with Raw Haddock and Beef.

Sep. No. 649 - Equipment Note No. 12--A New Scallop Trawl for North Carolina.

THE FOLLOWING PUBLICATIONS ARE AVAILABLE ONLY FROM THE SPECIFIC OFFICE MENTIONED.

California Fishery Market News Monthly Summary, Part I - Fishery Products Production and Market Data, February 1962, 14 pp. (Market News Service, U. S. Fish and Wildlife Service, Post Office Bldg., San Pedro, Calif.) California cannery receipts of tuna and tunalike fish and other species used for canning; pack of canned tuna, tunalike fish, sardines, mackerel, and anchovies; market fish receipts at San Pedro, Santa Monica, and Eureka areas; California and Arizona imports; canned fish and frozen shrimp prices; ex-vessel prices for cannery fish; Oregon and Washington receipts (domestic and imports) of fresh and frozen tuna and tunalike fish; for the month indicated.

California Fishery Market News Monthly Summary, Part II - Fishing Information, January, February, March 1962, 10 pp. each, illus. (U. S. Bureau of Commercial Fisheries, Biological Laboratory, P. O. Box 6121, Pt. Loma Station, San Diego 6, Calif.) Contains sea-surface temperatures, fishing and research information of interest to the West Coast tuna fishing industry and marine scientists; for the months indicated.

(Chicago) Monthly Summary of Chicago's Wholesale Market Fresh and Frozen Fishery Products Receipts, Prices, and Trends, March 1962, 14 pp. (Market News Service, U. S. Fish and Wildlife Service, 565 W. Washington St., Chicago 6, Ill.) Receipts at Chicago by species and by states and provinces for fresh- and salt-water fish and shellfish; and weekly wholesale prices for fresh and frozen fishery products; for the month indicated.

Monthly Summary of Fishery Products Production in Selected Areas of Virginia, North Carolina, and Maryland, March 1962, 4 pp. (Market News Service, U. S. Fish and Wildlife Service, 18 S. King St., Hampton, Va.) Landings of food fish and shellfish and production of crab meat and shucked oysters for the Virginia areas of Hampton Roads, Chincoteague, Lower Northern Neck, and Lower Eastern Shore; the Maryland areas of Crisfield, Cambridge, and Ocean City; and the North Carolina areas of Atlantic, Beaufort, and Morehead City; together with cumulative and comparative data on fishery products and shrimp production; for the month indicated.

New England Fisheries--Monthly Summary, March 1962, 22 pp. (Market News Service, U. S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston 10, Mass.) Review of the principal New England fishery ports. Presents data on fishery landings by ports and species; industrial fish landings and ex-vessel prices; imports; cold-storage stocks of fishery products in New England warehouses; fishery landings and ex-vessel prices for ports in Massachusetts (Boston, Gloucester, New Bedford, Provincetown, and Woods Hole), Maine (Portland and Rockland), Rhode Island (Point Judith), and Connecticut (Stonington); frozen fishery products prices to primary

wholesalers at Boston, Gloucester, and New Bedford; and Boston Fish Pier and Atlantic Avenue fishery landings and ex-vessel prices by species; for the month indicated.

(Seattle) Washington and Alaska Receipts and Landings of Fishery Products for Selected Areas and Fisheries, Monthly Summary, March 1962, 6 pp. (Market News Service, U. S. Fish and Wildlife Service, 706 Federal Office Bldg., 909 First Ave., Seattle 4, Wash.) Includes Seattle's landings by the halibut and salmon fleets reported through the exchanges; landings of halibut reported by the International Pacific Halibut Commission; landings of otter-trawl receipts reported by the Fishermen's Marketing Association of Washington; local landings by independent vessels; coastwise shipments from Alaska by scheduled and non-scheduled shipping lines and airways; imports from British Columbia via rail, motor truck, shipping lines, and ex-vessel landings; and imports from other countries through Washington customs district; for the month indicated.

MISCELLANEOUS PUBLICATIONS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM. CORRESPONDENCE REGARDING PUBLICATIONS THAT FOLLOW SHOULD BE ADDRESSED TO THE RESPECTIVE ORGANIZATIONS OR PUBLISHER MENTIONED. DATA ON PRICES, IF READILY AVAILABLE, ARE SHOWN.

ALGAE:

"Algae Feeding in Humans," by R. C. Powell, E. M. Nevels, and M. E. McDowell, article, Journal of Nutrition, vol. 75, September 1961, pp. 7-12, printed. Journal of Nutrition, American Institute of Nutrition, 36th Street at Spruce, Philadelphia 4, Pa.

"Nutritional Value as Protein of Some of the Nitrogenous Constituents of Two Marine Algae, Chondrus crispus and Laminaria digitata," by B. A. Larsen and W. W. Hawkins, article, Journal of the Science of Food and Agriculture, vol. 12, July 1961, pp. 523-529, printed. Journal of the Science of Food and Agriculture, Society of Chemical Industry, 14 Belgrave Square, London, SW1, England.

"Paper-Chromatographic Separation of Chlorophylls and Carotenoids from Marine Algae," by S. W. Jeffrey, article, Biochemical Journal, vol. 80, August 1961, pp. 336-342, printed. Biochemical Journal, Cambridge University Press, Bentley House, 200 Euston Rd., London NW1, England.

"A Study on a New Acidic Compound Isolated from Volatile Portion of a Green Alga, Ulva pertusa," by Teruhisa Katayama and Tetuo Tomiyama, article, Journal of the Faculty of Agriculture, Kyushu University, vol. 9, January 31, 1950, pp. 271-274, printed. Faculty of Agriculture, Kyushu University, Fukuoka, Japan.

ALGINIC ACID:

"Alginic Acid, Its Compounds, Their Properties and Possibilities of Usage," by H. Maass. Chemical Abstracts, vol. 55, August 7, 1961, 15835f, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C.

AQUATIC ORGANISMS:

A Bibliography: Effects of External Forces on Aquat-Organisms, by Frank J. Schwartz, Contribution No. 168, 85 pp., printed. Chesapeake Biological Laboratory, Solomons, Md., January 1961.

AUSTRALIA:

Fishing and Whaling, Australia, Statistical Bulletin No. 7, 21 pp., illus., processed. Commonwealth Bureau of Census and Statistics, Canberra, Australia. This is the seventh of a series of annual statistical bulletins dealing with the fishing and whaling industry. Statistics relate to the year 1960-61 for general fisheries, to the 1960 season for pearl-shell and trochus-shell fisheries, and to the 1961 season for whaling, with comparative data for the previous four years. The bulletin is divided into four parts. Part I deals with general fisheries including those for fish, crustaceans, and molluscs (edible products). Part II includes fisheries for pearl shell and trochus shell (inedible products). Part III covers the operation of the whaling industry in Australia and Norfolk Island. Part IV shows particulars of oversea trade in the products of fishing and whaling.

The Implications of the Introduction of European Carp into Victorian Waters, 119 pp., processed. Fisheries and Wildlife Department, Victoria, Australia, February 1, 1962. This review was prepared as Departmental evidence to be presented before the State Development Committee which was requested by the Government of Victoria, to inquire into matters associated with the introduction of European carp into Victorian waters. It covers the influence of carp on fresh-water fisheries, including competition for space and influence of feeding by carp on the environment and on other fish; and the influence of European carp on wildlife. It discusses the propagation of European carp and whether or not it should be discouraged or completely prohibited, and whether or not all European carp, wherever occurring in Victoria, should be destroyed. Draft is included of the legislation which would meet the situation if the necessity for the destruction of European carp is accepted. Other questions concerning the introduction of European carp into Victorian waters are also discussed.

AUSTRIA:

Seenschutz (Lake Protection), by Georg Beurle and others, 96 pp., printed in German. (Reprinted from Osterreichischen Wasserwirtschaftsverbandes, vol. 43.) Springer-Verlag, Wien, Austria.

BACTERIOLOGY:

Bacteriological Studies of Commercial Shellfish Operations on the Gulf Coast, by M. W. Presnell and C. B. Kelly, Technical Report F61-9, 55 pp., illus., printed. Robert A. Taft Sanitary Engineering Center, Public Health Service, Cincinnati, Ohio, 1961. Describes the results of bacteriological examinations of water, oyster, and bottom-deposit samples collected simultaneously in four representative commercial shellfish-producing areas on the Gulf Coast. The general objectives were to determine: (1) oyster/water coliform relationships in natural environments; (2) degree to which Gulf Coast shellfish and shellfish waters complied with current recommended bacteriological criteria; and (3) potential of bottom deposits as contributors to the coliform content of water and oysters.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

BIOCHEMICAL ANALYSIS:
"Comparative Biochemical Data for Some Fresh-Water Invertebrates and Fish," by A. V. Ananichev, article, Biokhimiia (Biochemistry), vol. 26, July-August 1961, pp. 16-26, printed. Biokhimiia (Biochemistry), Izdatelstvo Akademii Nauk SSSR, Moscow, U.S.S.R.

BIOCHEMISTRY:
"Biochemical Studies on the Growth and Maturation of Fish. XI--Content of Molybdenum and Nickel in the Liver of Tuna and Marlin," by Tadao Morio and Akimi Suzuki. Chemical Abstracts, vol. 55, May 15, 1961, 9703g, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C.

"Biochemical Studies on the Liquefaction of Fish Body. I--On Basic Conditions for the Liquefaction; II--On the Effectiveness of 'Solubilized Fish' to the Growth of a Plant, Lemna paucicostata Hegelm," by Tetuo Tomiyama and others, article, Science Bulletin, vol. 13, November 1951, pp. 297-312, printed in Japanese with English summary. Science Bulletin, Faculty of Agriculture, Kyushu University, Fukuoka, Japan.

"Comparative Biochemical Studies on Cytochromes and Related Substances of Invertebrates. I--Cytochrome Components and Electron Transfer in Fresh-Water Mussels," by Kiyozo Kawai, article, Journal of Biochemistry, vol. 29, May 1961, p. 427, printed. Journal of Biochemistry, Dept. of Biochemistry, Faculty of Medicine, Tokyo University, Bunyo-ku, Tokyo, Japan.

BYPRODUCTS:
"The Recovery of Fish By-Products in the Interior," by E. Kraack, article, Fischereiforschung, vol. 3, no. 7, 1960, p. 24, printed. Institut fur Hochseefischerei und Fischverarbeitung, Rostock-Marienehe, E. Germany.

CALIFORNIA:
The Marine Fish Catch of California (For the Year 1960), Fish Bulletin No. 117, 47 pp., illus., printed. California State Fisheries Laboratory, Terminal Island, Calif., 1961. A summary of the 1960 landings of fish, mollusks, and crustaceans in California by commercial fishing vessels or shipped into the State for processing. Statistical data cover annual landings and shipments, 1916-1960; landings and shipments of leading species by pounds and value; licensed commercial fishermen; number of fishing vessels by length; origin of shipments; origin of commercial fish landings; and monthly landings and shipments, statewide and by areas. Also included are data on value and quantity of annual landings by areas; value of landings by ports and areas; sport catch, 1951-1960; and live bait catch. It also contains a listing of common and scientific names of fish, crustaceans, and mollusks in the 1960 commercial catch.

CANNING:
"Canning of Frozen Sea Perch," by A. L. Petelina, S. A. Artjuhova, and K. I. Volkova, article, Rybnoe Khoziaistvo, no. 10, 1960, pp. 64-66, printed in Russian. Rybnoe Khoziaistvo, VNIRO Glavniproekta, pri Gosplanie SSSR, Moscow, Russia.

CHEMICAL CHANGES:
"Changes in the Recalcification and Fibrinolysis Times in Atherosclerotic and Normal Subjects After Single Ingestion of Saturated and Unsaturated Animal Fats," by Jerzy Gajewski. Chemical Abstracts, vol. 55, July 10, 1961, 13619d, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C.

CHEMISTRY:
"Alterations in Glycogen, Glucose, and Lactate in Rainbow and Kamloops Trout, Salmo gairdneri, Following Muscular Activity," by E. C. Black and others, article, Journal of the Fisheries Research Board of Canada, vol. 17, July 1960, pp. 487-500, printed. Fisheries Research Board of Canada, West Block, Ottawa, Canada.

"Glycogen Content in the Flesh of Fish, Crustaceans, and Mollusks," by P. V. Kizevetter. Chemical Abstracts, vol. 55, May 15, 1961, 9704g, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C.

"Studies on the Physiological Chemistry of Phosphorus Compounds in Fish Muscle. IV--On the Seasonal Variation of Phosphorus Compounds Content; V--Quantitative Differences of Phosphorus Compounds in Muscle of Fish Reared in Different Water Temperatures," by Tomoo Nakano, articles, Bulletin of the Japanese Society of Scientific Fisheries, vol. 27, February 1961, pp. 147-149, and vol. 27, April 1961, pp. 357-363, respectively, printed. Japanese Society of Scientific Fisheries, 6-chome, Shiba-Kaigandori, Minato-ku, Tokyo, Japan.

COD:
"Nucleotide Degradation in Frozen Cod (Gadus callarias)," by N. R. Jones and J. Murray, article, Biochemical Journal, vol. 80, August 1961, pp. 26P-27P, printed. Biochemical Journal, Cambridge University Press, Bentley House, 200 Euston Rd., London NW1, England.

COLD STORAGE:
"Storage of Frozen Fish Glazed by the Addition of Antioxidants," by R. R. Perepletchik and E. I. Novikova, article, Technology of Fish Processing (Israel Program of Scientific Translations, 1960, pp. 135-141). (Translated from the Russian Trudy VNIRO, vol. 35, 1958, pp. 152-158.) Trudy VNIRO, Glavniproekta, pri Gosplanie SSSR, Moscow, U.S.S.R.

CONSUMPTION:
Method of Preparing Fish for Consumption, by L. K. Anderson, P. E. Jann, and E. H. Carruthers, U. S. Patent 2,954,298, September 27, 1960. U. S. Patent Office, Washington 25, D. C.

CONTAINERS:
"Polybags and Plastic 'See-Through' Containers Used By More Fish and Seafood Packers," article, Quick Frozen Foods, vol. 24, September 1961, pp. 111-114, printed. Quick Frozen Foods, E. W. Williams Publications, Inc., 82 Wall St., New York 5, N. Y.

CRUSTACEANS:
"Humane Killing of Crustaceans," article, Science, vol. 135, no. 3503, February 16, 1962, pp. 587-593,

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printed. American Association for the Advancement of Science, 1515 Massachusetts Ave. NW., Washington 5, D. C. A number of letters are published here which comment, both pro and con, on a recent article in which the author advocates the humane killing of crabs in the home and on a commercial basis.

DECOMPOSITION:

"Chemical Indexes of Decomposition in Ocean Perch," by Fred Hillig, L. R. Shelton, Jr., and J. H. Loughrey, article, Journal of the Association of Official Agricultural Chemists, vol. 44, August 1961, pp. 488-493, printed. Association of Official Agricultural Chemists, P. O. Box 540, Benjamin Franklin Station, Washington 4, D. C.

"Chemical Indexes of Decomposition in Pollock and Whiting," by Fred Hillig and others, article, Journal of the Association of Official Agricultural Chemists, vol. 44, August 1961, pp. 499-507, printed. Association of Official Agricultural Chemists, P. O. Box 540, Benjamin Franklin Station, Washington 4, D. C.

DENMARK:

Fiskeriaarbogen, 1962 (The Fisheries Yearbook, 1962), vol. 69, December 1961, 797 pp., illus., printed in Danish, 12 kroner (US$1.74). Iver C. Weilbach & Co., Amaliegade 30, Copenhagen, Denmark. A comprehensive collection of information on navigation, fishery rules and regulations, inspection, etc., primarily for Danish fishermen. It is issued annually by the Ministry of Fisheries about the first of the year, and should not be confused with the Ministry's annual Fisheries Report. The major sections of the Yearbook cover tables for navigation, courses, and distances; regulations for sailing, lights, harbors, radio, etc.; laws and regulations on the fisheries; register of fishing vessels; laws and regulations on vessel inspection, construction, equipment, etc.; vessel inspection and quarantine regulations; accident insurance, etc.; loans to fishing vessels and the industry; hunting regulations; instructions regarding shipwrecks and accidents; fishery organizations--names and addresses; miscellaneous data on fish names, market sizes, conversion tables of length, area, weight, etc.; and problems of current interest: "Fish and Fishing Conditions in Greenland Waters" & "Requirements for Fishing in Greenland."

EXPORTS:

Preparing Shipments to Mexico, WTIS Part 2, Operations Report No. 61-88, 12 pp., printed, single copy 10 cents. Bureau of International Programs, U. S. Department of Commerce, Washington, D. C., revised February 1962. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) A report giving information on the preparation of shipments for export to Mexico. It covers the preparation of shipping documents, information on labeling and marking, customs procedures, and related subjects.

FACTORYSHIP:

"A Floating Fish Cannery," by S. S. Vershinin, article, National Lending Library Translations Bulletin, vol. 4, no. 2, February 1962, pp. 153-162, printed, 4s. (about 56 U. S. cents). (Translated from the Russian, Rybnoe Khoziaistvo, vol. 7, 1961, pp. 17-22.) NLL Translations Bulletin, Her Majesty's Stationery Office, P. O. Box 569, London S.E.1, England. Discusses the need for floating fish canneries in U.S.S.R. in view of the development of the fisheries, and the construction of a series of these vessels under the seven-year plan. Describes in detail the functions of the first vessel of the series Andrei Zahkarov which was built in 1960. The cannery is divided into the following sections by functions: receipt and storage of fish, sorting, washing and packing, closing and sealing, the autoclave section, and the section for preparing the canned goods for sale. The waste from production is treated in a special byproducts plant.

FATTY ACIDS:

"Egg Lipids of a Carp, Cyrinus carpio. I--Fatty Oil from Carp Egg; II--Lecithin from Carp Eggs," by Hisanao Igarashi, Koichi Zama, and Muneo Katada, articles, Bulletin of the Japanese Society of Scientific Fisheries, vol. 26, March 1960, pp. 326-329, vol. 26, November 1960, pp. 1128-1130, respectively, printed. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba-kaigandori 6-chome, Tokyo, Japan.

"Studies on the Action of Fish Components. III-The Antibiotic Action of Methyl Esters of Unsaturated Fatty Acids," by Yukio Tomiyasu and Masamichi Toyomizu, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 18, no. 12, 1953, pp. 683-686, printed. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba-kaigandori 6-chome, Tokyo, Japan.

FISHERIES RESEARCH:

Experts Engaged in Fisheries Research in the Council's Area (Appendix to Report of the 49th Meeting of the International Council for the Exploration of the Sea, Copenhagen, October 1961), 14 pp., printed. International Council for the Exploration of the Sea, Charlottenlund Slot, Charlottenlund, Denmark, March 1962. A list of experts engaged in fisheries research in the Council's area by name, title, address, and subject under Belgium, Denmark, Finland, France, Germany, Ireland, Iceland, Italy, Netherlands, Norway, Poland, Portugal, Spain, Sweden, United Kingdon, and U.S.S.R.

FISHERY OCCUPATIONS:

Training Programs for Fishery Occupations, OE-84025, 61 pp., printed, single copy 20 cents. U. S. Department of Health, Education, and Welfare, Washington, D. C., 1961. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) This publication provides information for the organization and operation of a training program for fishery occupations. Included is material to aid the vocational educator in establishing contact with agencies concerned with manpower development for the industry. Increased emphasis on training for the fishing industry stems from the challenge of international competition for the market, as well as utilization of new equipment, new processes, and new techniques in the location of fish, in shipboard refrigeration and preservation, in processing on shore and afloat, and in packaging for distribution. Legislation in the interest of the fishing in-

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dustry provides for vocational education in the trade and industrial and the distributive occupations of the fishing industry. Although this publication does not make suggestions relating specifically to distributive education, some of the basic information and procedures could apply to this field of training as well.

FISH FLOUR:

Fish Flour Technological Developments in South Africa, by G. M. Dreosti, R. P. Van der Merwe, and J. J. Dreyer, Paper No. R/V.2/3, printed. (Paper presented at the FAO International Conference on Fish in Nutrition, Washington, D. C., September 19-27, 1961.) Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, 1961.

FISH MANAGEMENT:

North of Scotland Hydro-Electric Board (Annual Report and Accounts, 1961), 83 pp., illus., printed, 5s. 6d. (76 U. S. cents). Her Majesty's Stationery Office. York House, Kingsway, London WC2, England, February 1962. A complete report of the activities of the North of Scotland Hydro-Electric Board during 1961. The section on Development and Research includes information on new fish devices designed by the Board's Research Laboratory, and the Appendix contains statistics on fish movements at various dam sites.

FISH MEAL:

The Effect of Fish Meal on the Hatchability of Hens' Eggs (Thesis submitted to the University of Reading for the degree of Master of Science, 1959-60), by R. S. Martin, Registrar, University of Reading, Berks, United Kingdom.

"Effect of Supplementing with Methionine, Cysteine and Derivatives of Thiazolidine-4-Carboxylic Acid on the Nutritive Value of Herring Meal Protein," by L. R. Njaa, article, Journal of the Science of Food and Agriculture, vol. 12, 1961, p. 757, printed. The Society of Chemical Industry, 14 Belgrave Square, London SW1, England.

"Nutritive Quality of Fish Meal To-day," by R. Berglund, article, Feedstuffs, vol. 33, April 1, 1961, p. 14, printed. Miller Publishing Co., 2501 Wayzata Blvd., Minneapolis 5, Minn.

"Trials With Rancid Herring Meal Fat," by B. Laksesvela, article, Meldinger SSF, p. 7, January 1961, printed. Sildolie og Sildmelindustriens Forsknings-Institutd, Damsgard, Bergen, Norway.

"Value of Menhaden Fish Meal as a Protein Supplement to Practical Swine Diets. I," by R. R. Kifer and E. P. Young, article, Journal of Animal Science, vol. 20, 1961, p. 938, printed. American Society of Animal Production, Colorado State University, Fort Collins, Colo.

FISH OIL:

"Dietary Marine Fish Oils and Cholesterol Metabolism. III--The Comparative Hypocholesterolemic Activities of Fish Oil and Vitamin A," by J. D. Wood and J. Topliff, article, Journal of the Fisheries Research Board of Canada, vol. 18, 1961, p. 377, printed. Fisheries Research Board of Canada, West Block, Ottawa, Canada.

"Effect of Various Oils and Fats on Serum Cholesterol in Experimental Hypercholesterolemic Rats," by R. Nicholayson and R. Ragard, article, Journal of Nutrition, vol. 73, 1961, p. 299, printed. American Institute of Nutrition, 36th Street at Spruce, Philadelphia 4, Pa.

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(North Pacific Fur Seal Commission) Proceedings of the Fourth Annual Meeting, January 30-February 4, 1961, Tokyo, Japan, 39 pp., processed. Secretary, North Pacific Fur Seal Commission, Department of the Interior, Washington 25, D. C., January 1962. The North Pacific Fur Seal Commission was established in January 1958, during a meeting held in Washington, D. C. The Commission was organized pursuant to the Interim Convention on Conservation of North Pacific Fur Seals, signed in Washington, D. C., on February 9, 1957, by the Governments of Canada, Japan, the U.S.S.R., and the United States. The Convention came into force on October 14, 1957. This report contains a summary of the proceedings of the Fourth Annual Meeting, a report of the Standing Scientific Committee, a list of participants attending the meeting, administrative report of the Secretary to the Fourth Meeting, and summaries of fur-seal investigations during 1960 and plans for fur-seal investigations during 1961.

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LIVER OIL:

"Lowering of Serum Cholesterol Level in Rats by Intraperitoneal Cod-Liver Oil," by Fredrik C. Gran and Ragnar Nicolaysen. Chemical Abstracts, vol. 55, October 30, 1961, 22617g, printed. American Chemical Society, 1155 16th St. NW., Washington, D. C.

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"Proposed Marine Biological Laboratory," by James E. Rice, article, Alabama Conservation, vol. 32, no. 7, December-January, 1961-62, pp. 14-15, illus., printed. Alabama Department of Conservation, 64 No. Union St., Montgomery 4, Ala. Discusses the need of a Marine Biological Laboratory in Alabama in order to increase the present limited and erratic production of shrimp and oysters and to train skilled personnel in this field of science.

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United States Coast Pilot 5--Gulf Coast, Puerto Rico, and Virgin Islands (Fourth Supplement), 23 pp., printed. U. S. Department of Commerce, Coast and Geodetic Survey, Washington 25, D. C., January 1962. Changes reported to C&GS from date of edition through Notice to Mariners 1 of January 6, 1962.

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"Lodda og Loddefisket" (Capelin and the Capelin Fishery), by Dag Moller and Steinar Olsen, article, Fiskets Gang, vol. 48, no. 3, January 18, 1962, pp. 27-36, illus., printed in Norwegian. Fiskets Gang, Fiskeridirektoratet, Radstuplass 10, Bergen, Norway.

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RADIATION PRESERVATION:

A Literature Survey on the Effects of Ionizing Radiations on Sea Foods with Respect to Wholesomeness Aspects, by S. A. Miller and others, TID-11610, 39 pp., processed, 75 cents. Department of Nutrition, Food Science and Technology, Massachusetts Institute of Technology, Cambridge 39, Mass. (Available from the Office of Technical Services, Department of Commerce, Washington 25, D. C.)

Outline of Projects to Determine the Feasibility of Radiation Preservation of Marine Products, by J. T. R. Nickerson and others, TID-6700, 88 pp., processed, $2. Department of Food Technology, Massachusetts Institute of Technology, Cambridge 39, Mass. (Available from the Office of Technical Services, Department of Commerce, Washington 25, D. C.)

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Refrigeration Engineering (A Source Book of Soviet Literature 1923-1955), by D. N. Prilutskii, 294 pp., printed (translated from Russian), single copy $3.00. State Publishing House for Books on Trade, Moscow, U.S.S.R., 1956. (For sale by the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C.). This is a "Source-book" for the Soviet journal Kholodil'naya Tekhnika (Refrigeration Engineering) which is U.S.S.R.'s principal periodical publication dealing with problems of technical production and use of refrigeration in the U.S.S.R. This is the only bibliographical work in the field of Soviet refrigeration and should, therefore, be of great benefit to scientific and engineering technical workers in this field. The "Source-book" indicates articles on the problems of the technique of production, the use of cold, and the design and technical operation of refrigerating plants that have been published in various journals. Divided into these three parts (each includes an independent index of authors): Technical operation and design of refrigerating plants; refrigeration industry, refrigerated transport of food products, and the use of refrigeration in various branches of the national economy; and the technique of refrigeration, and air conditioning.

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SHRIMP:
"Shrimp Research in Louisiana," by Lyle St. Amant, article, Louisiana Conservationist, vol. 14, no. 3, March 1962, pp. 2-4, illus., printed. Louisiana Wild Life and Fisheries Commission, Wild Life and Fisheries Bldg., 400 Royal St., New Orleans 16, La. The economy of the shrimp industry is closely geared to the annual production and, therefore low production years result in drastically poor economic conditions in the industry resulting in heavy financial burdens throughout the shrimp and allied industries. Since present knowledge of shrimp biology and ecology is such that expert management is not possible, the next best approach is a system of predicting annual shrimp production in time for the industry to gear itself to bad years. This article discusses the intensified shrimp research program that is now being maintained at a high level in Louisiana and the necessity for its expansion as funds, personnel, and equipment become available.

SMALL BUSINESS MANAGEMENT:
Getting Money for Long-Term Growth, by Neil H. Jacoby, Management Aid for Small Manufacturers No. 138, 4 pp., processed. Small Business Administration, Washington 25, D. C., March 1962. A leaflet offering pointers on getting money for long-term growth. Getting capital for long-term growth is one of the problems of an expanding company. Small businessmen in increasing numbers are solving this problem by getting equity capital from small business investment companies. The leaflet points out that there are more than 500 small business investment corporations in the United States and small businessmen are urged to select one that best suits their needs. It then suggests steps that should help owner-managers in their negotiations with the small business investment corporations.

SPOILAGE:
"Spoilage of Un-Iced Prawns and its Assessment by Objective Standards," by N. K. Velankar and others, article, Journal of Scientific and Industrial Research, vol. 20 D, no. 5, May 1961, pp. 189-191, printed. Council of Scientific and Industrial Research, Old Mill Rd., New Delhi 2, India.

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TRANSPORTATION:
Reducing Transportation Costs, by Arthur E. Gogol, Management Aids for Small Manufacturers No. 139, 4 pp., printed. Small Business Administration, Washington 25, D. C., April 1962. In summary, the author states that "Some small businessmen pay too much for transportation because, in many cases, they are not always aware of what is involved in this expense item. Often they fail to realize the impact that various aspects of their operations have on the cost of inbound and outbound shipping." This report provides a checklist which owner-managers may find useful in analyzing their transportation expenses and the impact which operations, such as purchasing, receiving, storing, packaging, warehousing, and customer service, have on this cost item. It suggests that a system or a continuing program be used for cutting transportation costs. Such a system should give owner-managers (1) a continuing awareness of transportation costs, (2) personal control over these costs, and (3) the ability to plan and compute transportation costs.

TRAWLING:
"Chalut de Fond ou Pélagique à Volonté tel est Le Chalut 'Grouselle'" (Bottom or Mid-Water Trawling at Will with the "Grouselle" Trawl), article, France-Peche, no. 56, November 1961, pp. 125-126, illus., printed in French. France Peche, Service Abonnement, Boite Postale 179, Lorient (Morbihan), France. Describes the newly perfected "Grouselle" trawl, a net with a very large opening capable of operating on the bottom or in midwater. The special characteristic of the gear is that a trawler operating it on the bottom can, at will, and with no alterations raise it to any required depth and just as easily return it to the bottom; stability and very wide net opening are maintained by the simple adjustment of the warps.

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"Commercial Trout Farming in U.S.A.," by John W. DeWitt, article, U. S. Trout News, vol. 6, July-August 1961, pp. 4-5, printed. U. S. Trout News, U. S. Trout Farmers Association, 110 Social Hall Ave., Salt Lake City 11, Utah.

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PREVENTATIVE MAINTENANCE HELPS ASSURE PROPER OPERATION OF OUTBOARD MOTOR

Fitting out your outboard motor for the spring will give you a trouble-free season if you check out a few basic points before your first launching. Follow the instructions in the owner's manual to insure that the motor is ready to perform at its best from the start of the season.

With the motor either on a boat or a stand, check the lower unit first. Following the instructions in the owner's manual, remove the propeller nut, drive pin, and propeller.

Fig. 1 - Propellers should be checked for nicks or bent blades. A slightly off-pitch propeller can seldom be detected by casual observation, but can seriously affect the performance of an outboard motor. Suspected prop damage should be checked with marine dealers.

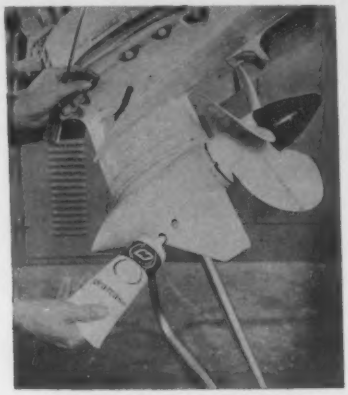


Fig. 2 - Spring fitting out of outboard motors should include the draining and refilling of the gearcase with the proper lubricant according to the manufacturer's specifications. Use of the incorrect lubricant may cause serious damage to the motor.

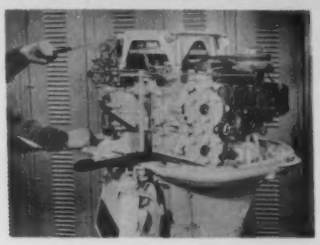


Fig. 3 - After a winter of storage, a general cleaning of the outboard motor's powerhead is desirable. After the spark plugs are removed, the flywheel should be rotated by hand. This removes excess cylinder oil and coats the cylinder walls.

Fig. 4 - Check the spark plugs carefully. If they are clean and the porcelain around the center electrode is a light brown color, the plugs are all right. It's a good idea to keep an extra set of spark plugs in the boat and check for proper gap before installation.

Check the propeller for nicks or bent blades. If the nicks are minor they can easily be repaired at home or by having your marine dealer check the pitch and blade area on a pitch block. A slightly off-pitch propeller can rarely be detected by casual observation, but will affect the performance of your motor. Next place a light coat of grease on the propeller shaft before replacing the propeller. Replace the drive pin and install a new cotter pin.

Then drain and refill the gearcase with the proper lubricant according to the manufacturer's recommendations.

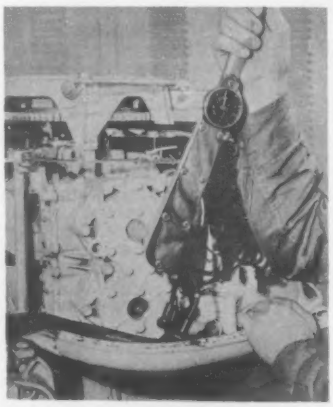


Fig. 5 - Proper torque of spark plugs is essential when fitting the outboard motor for a season of use. Most marine dealers are equipped to properly tighten spark plugs.

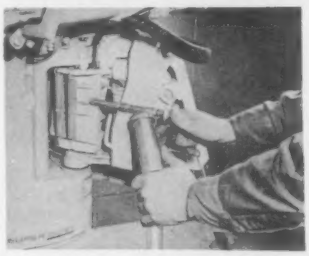


Fig. 6 - One of the most important functions in the spring fitting out of a motor is applying the proper lubricant to all recommended grease fittings. Use of the lubricant specified by the engine manufacturer is essential to the proper operation of the motor.

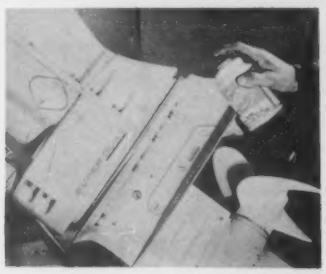


Fig. 7 - Final preparation in the fitting out of the engine for a season of service is cleaning the motor and touching up scratched areas with matching paint.

The powerhead will require a little servicing if the motor was prepared properly for off-season storage. A general cleaning of the powerhead, however, is desirable. After removing the spark plugs, slowly rotate the flywheel by hand. This not only removes any excess oil from the cylinders, but coats the cylinder walls properly.

Check the spark plugs carefully. If they are clean and the porcelain around the center electrode is a light brown color, the plugs are all right.

It's usually a good idea to keep an extra set of new spark plugs. Make sure they are specified for use in your motor by the engine manufacturer and check for proper spark-plug gap before installing.

Proper torque for spark plugs is as important as the proper tightening of screws, bolts, nuts, and studs throughout the entire motor. The manufacturer's specifications should be fully complied with.

One of the most important functions, and one many owners neglect, is applying the proper lubricant to all recommended grease fittings. If the correct grease is not used, serious damage to the motor can result.

The final preparation is cleaning the motor and touching up scratched areas with matching paint.

Boat owners unfortunate enough not to run out of gas as the nose of their boat touched dock for the previous season should forget about using old gas for a new season.

The outboard motor fuel tank should be cleaned inside and out, and all gum, varnish, and residue should be removed. Gasoline left in the tank for a long period of time (several weeks) will cause difficult starting and can lead to spark plug failure.

Should any questions of difficulties arise about the condition of the motor during fitting out, take the motor to the dealer.

--Ernst Ott, Outboard Marine International, S. A.
Nassau, Bahamas.

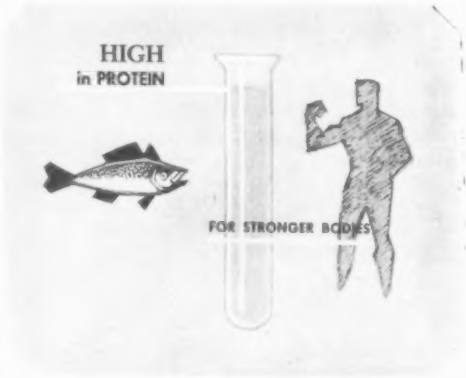
FISH NUTRITION

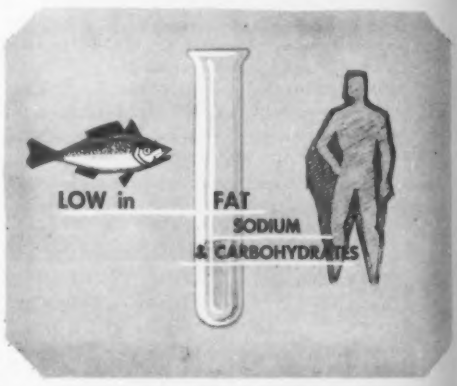
Here is a well rounded story on the nutritive qualities of fish.

The average American eats only about 10 pounds of fish a year, according to the U. S. Bureau of Commercial Fisheries. Japanese and the Scandinavians eat four times as much. Only about 50 percent of all the fish caught in the United States is used for food.

Nutritionally speaking, fish have much in their favor:

1. Most fish are 18-20 percent protein, about the same as meat and the protein is of a very high quality.
2. Most varieties are low in fat--less than 1 percent--thus being moderately low in calories. Fish such as cod, haddock, ocean perch, flounder, and sole supply only about 80 calories (1 gram of fat and 18 grams of protein) for every 3- to $3\frac{1}{2}$-ounce serving.
3. The varieties with more fat in them have an important characteristic. Fish oil is a highly unsaturated oil and compares favorably with some vegetable oils in its ability, under certain conditions, to lower the level of cholesterol in the blood. Moderately fat fish (2-5 percent), such as trout, pickerel, catfish, bluefish, halibut, swordfish, supply about 125 calories per serving. The so-called high fat fish (8-15 percent) are still fairly modest in calories. Mackerel, salmon, sardines, pompano, herring, average from 180 to 200 calories for each serving. These "fat" fish also have a considerable amount of vitamin A.





4. Shellfish--oysters and clams in particular--are good sources of iron.
5. Fish with soft bones which you can eat such as sardines and canned salmon are high in calcium and fluorine, the tooth decay-preventing mineral nutrient.

In spite of all these attributes, as a nation, we aren't much interested in fish. The chief problems seem to be:

1. Many people think fish must be fresh to be enjoyed. Better freezing methods are making it possible for the Middle West in particular to have a steady supply of high-quality fish.
2. Fish has been designated in most minds as "Friday" food.
3. Unless fish is prepared with care and imagination, it can be pretty dull stuff. The flavor is monotonous. But fish prepared with a judicious use of herbs and a gentle touch is a real gourmet delight.

Fish makes nutritional sense. And economy is a factor; many types of fish will fit almost any budget.